Senior 4 Consumer Mathematics (40S)
Standards Test

Portfolio
Guide for Teachers

2005

Manitoba
Building for the Future

This package contains:

- Introductory Information
- *Student Organizer Sheet*
- Student reflection sheets with Portfolio questions
- Recommended Portfolio Scoring Strategy
- *Portfolio Scoring Rubric*
- *Portfolio Recording Sheet*

Introductory Information

The Portfolio component of the Senior 4 Consumer Mathematics (40S) Standards Test is a classroom-based assessment and may be scored using either a written submission approach or an interview approach at the discretion of the classroom teacher.

The questions for the Portfolio component are designed to function as both writing prompts (written submission approach) and interview prompts (interview approach).

Teachers are encouraged to have students complete preparatory work on the reflection sheets towards the end of the course and to begin the Portfolio component process prior to the assessment period to allow sufficient time for interviewing and/or marking.

Recommendations for Preparing Students for the Portfolio component

1. Inform students whether they will be submitting their portfolios for marking (written submission approach) or whether they will be bringing their portfolios to an interview of approximately 20 minutes in duration.

2. Share the scoring rubric with students. The more information they have on the method of evaluation, the more prepared they will be to meet the expectations.

3. Remind students to use the *Student Organizer Sheet* to assist them in selecting work samples that illustrate different skills as well as different units of study. For example, selecting three tests from three different units will not score as well as three different types of consumer mathematics activities from three different units in which the student demonstrates different competencies.

4. Inform students that their reflection sheets are the method by which they will be evaluated if the written submission approach is being used. If the interview approach is being used, the reflection sheets provide prompts for discussion during the interview.

5. Explain to students that each reflection sheet has a Part A and a Part B. Both parts provide prompts students should follow in preparing their submission (oral or written). These prompts are designed as focal points for their written response (written submission approach). In the interview approach, these are the verbal prompts that the interviewer uses to engage students in discussing each portfolio selection.

6. Make students aware that interviewers conduct similar interviews for all students.

7. When using the written submission approach, teachers will not proofread or make suggestions about written responses prior to submission.

Recommendations for Administering the Portfolio Component

1. Introduce the practice of maintaining a portfolio early in the year. Inform students that part of their Provincial Test Standards Mark is based on their portfolio (30%).

2. Create a system for organizing and storing portfolios. Some teachers have had students use storage containers such as pizza boxes, file folders or accordion files.

3. Form your decision to interview students or mark their submitted portfolios early in the semester/year. Inform the students of your plan.

4. Plan sufficient time and reserve a quiet place for interviewing/marking the Portfolio component. All marks must be recorded by June 13, 2005.

5. **Photocopy sufficient quantities** of the *Student Organizer Sheet* and student reflection sheets. Distribute the sheets to students to allow sufficient time for them to make good choices in their sample selections and to construct thorough responses.

6. If interviewing, relax the student by describing the process. Let the student know in advance if you will be jotting down notes as the interview proceeds.

7. Keep the recording sheets in a secure location with demographic forms and the *Attendance Form*. The *Attendance Form* is required during the remaining two parts of the standards test.

Recommendations for Scoring the Portfolio component

This package contains sufficient numbers of scan sheets (based on the number of students registered for your course) for recording portfolio scores. Keep a record of each student's results. A recording sheet template is provided to assist you.

Specific directions for scoring the portfolios are listed on page 13.

Booklet No.:

Student Organizer Sheet

Senior 4 Consumer Mathematics (40S) Standards Test: Portfolio

Please include the following five (5) work samples and their accompanying Reflection Sheet:

MANDATORY SAMPLES (3)

☑ **Career/Life Project**
(Use the *Portfolio Sample: Career/Life Project Reflection Sheet*)

☑ **Personal Income Tax Form**
(Use the *Portfolio Sample: Personal Income Tax Form Reflection Sheet*)

☑ **Design and Measurement**
One work sample reflecting any one of the following curriculum outcomes:
- Draw simple objects as oblique projections
- Sketch simple objects in "exploded" format
- Draw the parts of a simple object to scale
- Describe the differences among oblique projections, "exploded" diagrams, and constituent parts diagram for objects

(Use the *Portfolio Sample: Design and Measurement Reflection Sheet*)

STUDENT CHOICE SAMPLES (2)

☑☑ **Two (2) work samples of your choice**
- Samples from two (2) different Units of Study demonstrating a variety of skills and strategies. See the list of Types of Work Samples below for suggestions.

(Use the *Portfolio Sample: Student Choice Reflection Sheets*)

Units of Study:

- ❑ Problem Analysis
- ❑ Investigative Project
- ❑ Analysis of Games and Numbers
- ❑ Government Finances
- ❑ Investments
- ❑ Personal Finance
- ❑ Design and Measurement
- ❑ Statistics
- ❑ Variation and Formulas

Types of Work Samples (You may want to use one of the following suggestions):

- ❑ Budget
- ❑ Daily Assignment
- ❑ Journal Entry
- ❑ Technology/Spreadsheet/CAD
- ❑ Other (specify) _____
- ❑ Case Study
- ❑ Discussion Notes
- ❑ Project
- ❑ Test/Quiz
- ❑ Chart/Graph/Diagram
- ❑ Game/Puzzle
- ❑ Research
- ❑ Unit Summary

Booklet No.:

Portfolio Sample: Career/Life Project Reflection Sheet

This activity allows students to show they have produced work that reflects the following curriculum areas:

- describe factors important in selecting careers (factors such as: job description, educational background, salary/wage levels, and employment opportunities for advancement)

- analyze the lifestyle one specific career could entail (in terms of monthly budget, lifestyle appropriate to the career, and any negative factors in the job)

Directions for Students

PART A: THE REAL WORLD CONNECTION

- What factors did you consider when selecting the career you described?
- Describe the monthly budget and lifestyle you would expect when you are working in your chosen field. You may want to compare this to the lifestyle you would have when training for your career.

Directions for Students

PART B: THE MATHEMATICS CONNECTION

Explain how this project connects to Consumer Mathematics.

- What ideas did you apply or integrate from other Consumer Mathematics units?

Booklet No.:

Portfolio Sample:
Personal Income Tax Form Reflection Sheet

This activity allows students to show they have produced work that reflects the following curriculum areas:

- explain the purpose of different sections of the T1 General Income Tax Form
- complete income tax forms for a single parent with a child and a married couple without a child

Directions for Students

PART A: THE REAL WORLD CONNECTION

Compare the differences between an income tax return for a single parent with a child and the return for a married couple without a child.

- Which income tax forms (electronic or paper copies) did you use to complete an income tax return?
- What factors might lower the tax owing or increase the refund? Be specific.

Directions for Students

PART B: THE MATHEMATICS CONNECTION

Describe how the income tax form connects to Consumer Mathematics

- What ideas did you apply or integrate from other Consumer Mathematics units?

Booklet No.:

Portfolio Sample:
Design and Measurement Reflection Sheet

This activity allows students to show they have produced work that reflects one of the following curriculum areas:

- draw simple objects as oblique projections
- sketch simple objects in exploded format
- draw the parts of a simple object to scale
- Describe the differences among oblique projections, "exploded" diagrams, and constituent parts diagram for objects

Directions for Students

PART A: THE REAL WORLD CONNECTION

Describe your sample from the Design and Measurement Unit and explain how this sample connects to everyday life.

- What did you learn about your personal skills and interests from doing the work in this unit?
- What types of activities or workplaces require the use of design and measurement skills?
- Describe situations or activities that would give you an opportunity to apply what you have learned in the Design and Measurement unit.

Directions for Students

PART B: THE MATHEMATICS CONNECTION

Describe the processes involved in producing the work sample you chose.

Booklet No.:

Portfolio Sample: Student Choice Reflection Sheet

Directions for Students

PART A: THE REAL WORLD CONNECTION

Explain how this sample connects to every day life.

- What did you learn about your personal skills and interests?
- What types of activities or workplaces use this kind of information?

Directions for Students

PART B: THE MATHEMATICS CONNECTION

Explain the mathematical skills you needed to produce this sample of work.

Recommended Portfolio Scoring Strategy

Students are scored on two dimensions, using a pre-established scoring rubric (see page 16), whether an interview approach or the written submission approach is being used.

Dimension 1

THE MARKER HOLISTICALLY SCANS THE PORTFOLIO

This scoring dimension focuses on whether the portfolio is complete and how the work has been communicated and organized. The marker is answering the questions, "Generally, are the portfolio samples organized, complete, and is work communicated appropriately? Do the student choice samples illustrate different types of work (e.g. not just tests)?" The following marking strategy is recommended:

- Scan the student's portfolio for a general sense of how the student has selected samples and presented them.
- Read the descriptors under Level 2 and decide if they are appropriate. If not, read the descriptors of the level above or below.
- If only some of the descriptors in a particular level of performance fit, determine the degree to which the student is approaching the next or previous level and whether the "approaching level" is a more appropriate description of the portfolio.

Dimension 2

THE MARKER HOLISTICALLY CONSIDERS EACH STUDENT SAMPLE

Dimension 2 focuses on each sample in the student's portfolio collection. The marker is answering the question, "For each sample, has the student linked the reflection sheet to the work sample in terms of "real world connections" and "mathematics connections"?"

SUGGESTED APPROACH

Written Submission Approach

- Read each student's reflection sheet for evidence of specific reflections related to each portfolio sample.
- Form a judgement on each sample provided, considering the evidence of mathematical connections and the connections to the real world.

Interview Approach

- If using the interview approach, ask the student to respond orally to each prompt.
- Listen for evidence of specific reflections related to each portfolio sample. Form a judgement based on the information provided by the student, considering the evidence of mathematical connections and connections to the real world.

INSUFFICIENT CATEGORY

The "insufficient information" category is used when the marker cannot make a judgement on the portfolio for any of the following reasons:

- The portfolio is not legible
- No student reflection is provided/the reflection sheet is missing
- The portfolio does not fit the descriptors on the rubric (does not meet requirements)
- The sample is missing

If the portfolio is not submitted, then shade in the "no submission" bubble beside the "Total Score" and do not shade in the "insufficient information" bubbles.

Consumer Mathematics (40S)—Portfolio Scoring Rubric

Consumer Mathematics (40S) PORTFOLIO Scoring Rubric*	Level 1 DESCRIPTORS	Level 2 DESCRIPTORS	Level 3 DESCRIPTORS NEW!
Dimension 1 • Communication/Organization/ Sample Selection	• Limited organization and communication of necessary information (samples are missing or incomplete)	• Good organization and communication of necessary information (samples are complete)	• Exceptional organization and communication of necessary information (varied selection of samples)
Dimension 2 • **Part A** The Real World Connection	• Limited attempt to connect concepts to everyday life	• Good connections between mathematical concepts and everyday life	• Makes exceptional multiple or in-depth connections between mathematical concepts and everyday life.
• **Part B** The Mathematics Connection	• Limited reasoning; ideas are sometimes unrelated to mathematical concepts • Limited explanation related to portfolio work sample	• Good reasoning; most ideas are related to relevant mathematical concepts • Good explanation related to portfolio work sample	• Exceptional reasoning; insightful reflection using relevant mathematical concepts • Exceptional explanation related to portfolio work sample

Performance Level	Level 1	Approaching Level 2	Level 2	Approaching Level 3	Level 3

* REVISED JUNE 2004

Manitoba

PLEASE DO NOT WRITE IN THIS AREA

[SERIAL]

Senior 4 Consumer Mathematics (40S) Standards Test—2005

NEW!

Portfolio Scoring Sheet

INSTRUCTIONS

- Use an HB pencil only.
- Do not use ballpoint or felt tip pens.
- Do not mark other areas on this form.
- Shade the appropriate circle.
- Erase cleanly any marks you wish to change.

CORRECT: ● INCORRECT: ⊘⊠◒◔

○ INTERVIEW APPROACH

○ WRITTEN SUBMISSION

	Insufficient Information/Evidence	Level 1	Approaching Level 2	Level 2	Approaching Level 3	Level 3	
Dimension 1 • Communication/Organization/Sample Selection	⓪	②	④	⑥	⑧	⑩	101
Dimension 2 Sample 1: Career/Life Project • The Real World Connection (Part A) • The Mathematics Connection (Part B)	⓪ ⓪	① ①	② ②	③ ③	④ ④	⑤ ⑤	102 103
Sample 2: Personal Income Tax Form • The Real World Connection (Part A) • The Mathematics Connection (Part B)	⓪ ⓪	① ①	② ②	③ ③	④ ④	⑤ ⑤	104 105
Sample 3: Design and Measurement • The Real World Connection (Part A) • The Mathematics Connection (Part B)	⓪ ⓪	① ①	② ②	③ ③	④ ④	⑤ ⑤	106 107
Sample 4: (Choice 1) • The Real World Connection (Part A) • The Mathematics Connection (Part B)	⓪ ⓪	① ①	② ②	③ ③	④ ④	⑤ ⑤	108 109
Sample 5: (Choice 2) • The Real World Connection (Part A) • The Mathematics Connection (Part B)	⓪ ⓪	① ①	② ②	③ ③	④ ④	⑤ ⑤	110 111
Subtotals		+	+	+	+	=	

No submission	Ⓝ	112	**60 Mark**

15780

Senior 4 Consumer Mathematics (40S)
Standards Test

Project Resource Package

Career Symposium

April 2005

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Assessment and Evaluation Branch,
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Welcome to the Career Symposium Project

General Information

The purpose of the first session is to provide an opportunity for you to:

- develop an understanding of the project requirements;
- become familiar with the information contained in the *Project Resource Package*; and
- share ideas related to the project in a brainstorming session.

After the first project session the following conditions apply:

1. Two additional class work periods will be provided.
2. Your teacher cannot assist you in developing or revising your project.
3. You may conduct research on your project between work periods.
4. You must submit an individual project that reflects your own work.

Guidelines for the Career Symposium Project

This project requires you to take the view of a person organizing a career symposium.

In doing this project the following scenarios and requirements apply:

1. You need to create a report outlining your plans for staging a career symposium that provides information on the following:
   - where presenters are located;
   - other important details related to the symposium;
   - expected costs; and
   - expected profit.
2. The symposium is a one day event.
3. The symposium will need to take place in a rented auditorium.
4. Presenters have applied to set up booths at the symposium.
5. Presenters will pay a fee (based on the size of their booth) to present at the symposium.
6. Brochures will be used to publicize the event.
7. Students attending the symposium will need a ticket purchased by themselves or their school. The ticket price should not be greater than $1.50.
8. A successful symposium should include a diverse variety of career categories and booth sizes.

Directions for the Career Symposium Project

Your completed project must include the following information:

- a floor plan indicating the location of the career information booths;
- a chart indicating the categories of careers represented (each career category must be represented by at least one booth);
- the number of booths rented and the income earned from the rental;
- the costs associated with printing up to 10 000 promotional brochures;
- an estimate (with explanation) of the number of students who will attend;
- an admission ticket price that will result in a profit of at least $250.00 and not more than $1 500.00; and
- projected expenses, revenues and profit for the symposium.

Justify any assumptions or decisions you make in completing your project.

Your completed project must:

- be separate from this *Project Resource Package* booklet;
- be well organized and clearly presented with an introduction and conclusion; and
- be written or printed in blue or black ink or printed using black ink from a printer.

Project Resource Package

This *Resource Package* includes:

- auditorium rental costs and booth fee schedule;
- auditorium floor plan;
- examples of career categories;
- display booth requests; and
- market research and brochure printing costs.

Use of *Resource Package*:

This resource package is designed to provide background information, charts, diagrams, and tables to assist you in completing your project. You may use additional or alternate resources if you wish. Remember to submit your project separate from this booklet.

Auditorium Rental Costs and Booth Fee Schedule

Auditorium Specifications

Ceiling height: 30 feet

Area of Auditorium	Maximum Number of Booths		
(140 ft × 200 ft)	(10 ft × 10 ft)	(10 ft × 20 ft)	(10 ft × 30 ft)
28 000 ft^2	135	70	40

Auditorium Rental Costs
28 000 square feet $3 000.00 per day minimum **or** 22.6¢ per square foot for actual display area used for booths

Booth Fee Schedule		
10 ft × 10 ft	10 ft × 20 ft	10 ft × 30 ft
$15.00	$25.00	$30.00

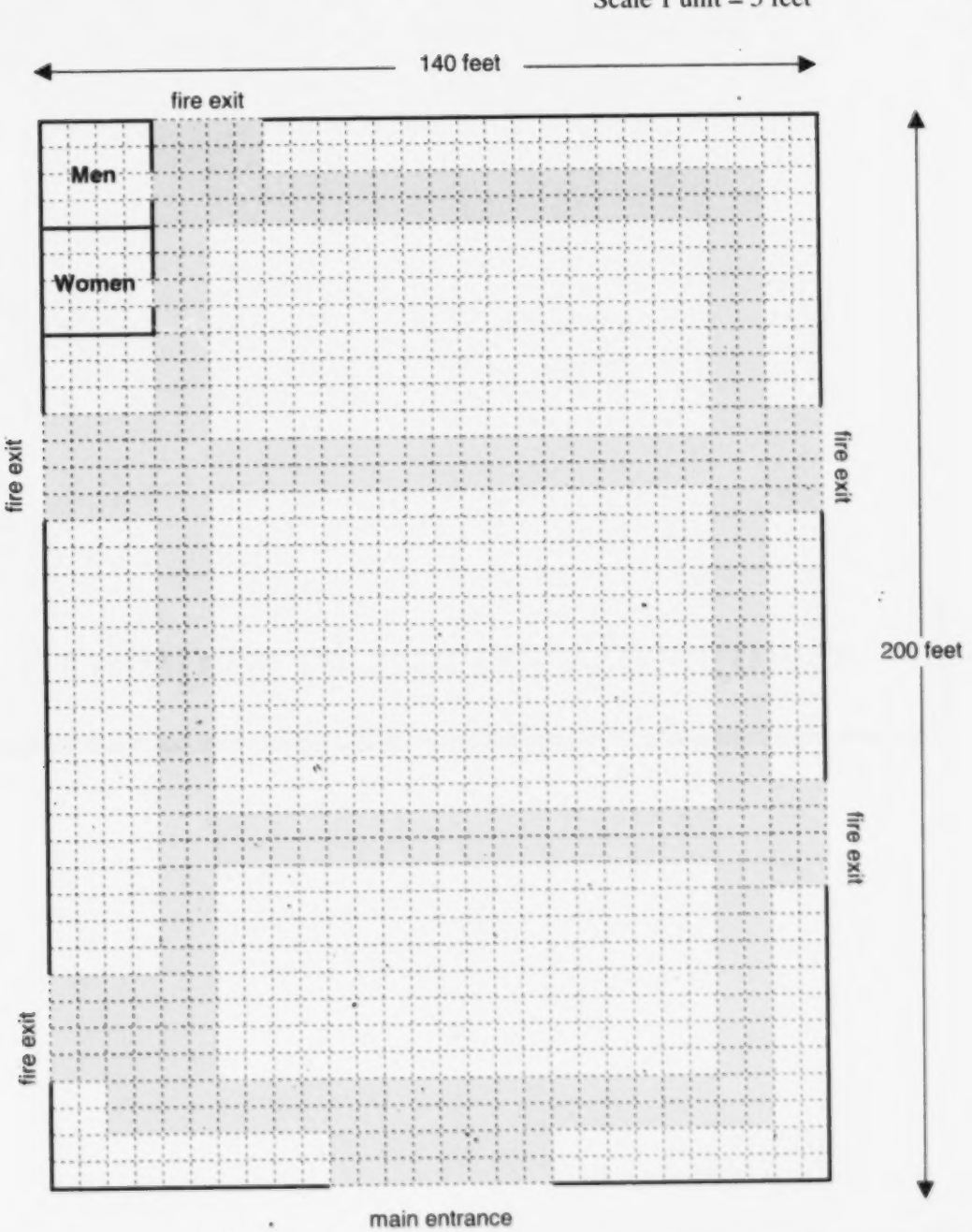
Auditorium Floor Plan

The floor plan may be reproduced by the teacher for student use.

Reproducible Page

Auditorium Floor Plan

Scale 1 unit = 5 feet



Fire regulation aisles (minimum standard)

Note: · Additional aisles must be a minimum of 10 feet wide.

Examples of Career Categories

Examples of Career Categories

- **Management**
  e.g., human resources, management consultants, personnel management

- **Business, Finance and Administration**
  e.g., accountant, real estate, postal worker, banker, teller, secretary, receptionist

- **Natural and Applied Sciences**
  e.g., engineer, architect, draftsperson, chemist, biologist, physicist, computer technician, computer programmer, machinist, aerospace worker, air traffic controller

- **Health**
  e.g., nurse, doctor, pharmacist, dentist, dental hygienist, chiropractor, physiotherapist, optometrist, dietician, occupational therapist, speech/language pathologist, audiologist, athletic therapist

- **Social Science, Education, Government Service and Religion**
  e.g., international trader, lawyer, professor, teacher, counsellor, psychologist, ergonomist, law clerk, librarian, minister/priest/rabbi

- **Art, Culture, Recreation and Sport**
  e.g., translator, editor, public relations, actor, artist, musician, professional athlete, coach, graphic designer, animator

- **Sales and Service**
  e.g., retail salesperson, wholesaler, hotelier, purchasing agent, insurance agent, real estate broker, chef, cook, florist, police officer, firefighter

- **Trades, Transport and Equipment Operations**
  e.g., machinist, tool maker, electrician, plumber, sheet metal worker, welder, mason, roofer, mechanic, textile worker, railway worker, trucker, autobody repair, construction worker

- **Industry**
  e.g., forest ranger, miner, farmer, fisher, trapper.

- **Processing, Manufacturing and Utilities**
  e.g., exporter, factory worker, technician

Display Booth Requests

Display Booth Requests by Career Category

CATEGORY	Symbol*	Size (in feet)	Number Requested	Number Assigned	Total Cost
Management	M	10 × 10 ($15)	3		
		10 × 20 ($25)	3		
		10 × 30 ($30)	1		
Business, Finance and Administration	B	10 × 10 ($15)	7		
		10 × 20 ($25)	3		
		10 × 30 ($30)	2		
Natural and Applied Sciences	N	10 × 10 ($15)	5		
		10 × 20 ($25)	2		
		10 × 30 ($30)	3		
Health	H	10 × 10 ($15)	11		
		10 × 20 ($25)	4		
		10 × 30 ($30)	6		
Social Science, Education, Government Service and Religion	S	10 × 10 ($15)	10		
		10 × 20 ($25)	3		
		10 × 30 ($30)	2		
Art, Culture, Recreation and Sport	A	10 × 10 ($15)	9		
		10 × 20 ($25)	1		
		10 × 30 ($30)	2		
Customer Sales and Service	C	10 × 10 ($15)	14		
		10 × 20 ($25)	3		
		10 × 30 ($30)	2		
Trades, Transport and Equipment Operations	T	10 × 10 ($15)	10		
		10 × 20 ($25)	4		
		10 × 30 ($30)	2		
Industry	I	10 × 10 ($15)	3		
		10 × 20 ($25)	2		
		10 × 30 ($30)	3		
Processing, Manufacturing and Utilities	P	10 × 10 ($15)	5		
		10 × 20 ($25)	2		
		10 × 30 ($30)	1		

* Please use the above symbols to indicate the relative position of each display booth on the floor plan you create.

Market Research and Brochure Printing Costs

Market Research:

Your research shows the following relationship between paper selection for the brochures and number of visitors (based on the distribution of up to 10 000 brochures).

Paper Selection	Expected Number of Visitors at Symposium
White	20% of number of brochures distributed
Coloured	30% of number of brochures distributed
Bright Colours	40% of number of brochures distributed

Brochure Costs:

Fixed Costs for Brochure Development

Artwork $150.00
Word Processing $50.00
(PST/GST included)

Printing Costs (cost per 8.5" × 11" sheet in dollars)

Number of sheets (folded into brochures)	Costs		
	White 1 sided	Coloured 1 sided	Bright Colours 1 sided
0–100	$0.060	$0.100	$0.120
101–500	$0.050	$0.090	$0.110
501–2500	$0.045	$0.080	$0.100
2501+	$0.041	$0.070	$0.080

Senior 4 Consumer Mathematics (40S)
Standards Test

Project Scoring Guide

Career Symposium

April 2005

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Welcome to the Career Symposium Project

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2. Your teacher cannot assist you in developing or revising your project.
3. You may conduct research on your project between work periods.
4. You must submit an individual project that reflects your own work.

Guidelines for the Career Symposium Project

This project requires you to take the view of a person organizing a career symposium.

In doing this project the following scenarios and requirements apply:

1. You need to create a report outlining your plans for staging a career symposium that provides information on the following:
   - where presenters are located;
   - other important details related to the symposium;
   - expected costs; and
   - expected profit.
2. The symposium is a one-day event.
3. The symposium will need to take place in a rented auditorium.
4. Presenters have applied to set up booths at the symposium.
5. Presenters will pay a fee (based on the size of their booth) to present at the symposium.
6. Brochures will be used to publicize the event.
7. Students attending the symposium will need a ticket purchased by themselves or their school. The ticket price should not be greater than $1.50.
8. A successful symposium should include a diverse variety of career categories and booth sizes.

Directions for the Career Symposium Project

Your completed project must include the following information:

- a floor plan indicating the location of the career information booths;
- a chart indicating that each career category is represented by at least one booth;
- the number of booths rented and the income earned from the rental;
- the costs associated with printing up to 10 000 promotional brochures;
- an estimate (with explanation) of the number of students who will attend;
- an admission ticket price that will result in a profit of at least $250.00 and not more than $1 500.00; and
- projected expenses, revenues, and profit for the symposium.

Justify any assumptions or decisions you make in completing your project.

Your completed project must:

- be separate from this *Project Resource Package* booklet;
- be well organized and clearly presented with an introduction and conclusion; and
- be written or printed in blue or black ink or printed using black ink from a printer.

Note to teacher:

The purpose of this document is to assist teachers in detecting reasonable calculations and sufficient data when scoring student projects. The document includes a scoring rubric and a sample response to the Project.

A variety of organizational structures and types of responses to the Career Symposium Project is anticipated. Student explanations for their decision-making will vary. When organizing the symposium, students may consider many issues, including:

- budget;
- preferred career categories; and
- number of visitors.

Scoring the Project:

Student projects are scored using a pre-established rubric that covers three broad categories. The scores awarded are placed on a *Project Scoring Sheet*. The "Organization/Structure and Communication" category primarily focuses on how the student has organized and communicated work. Judging whether the student selected required data and used appropriate mathematical procedures is the primary focus of the "Data Selection/Analysis" category. The third category, "Concepts/Reasoning", is primarily focused on judging if the student understood necessary concepts and demonstrated logical reasoning in drawing conclusions and making justifications.

The order of proceeding through the rubric and completing the *Project Scoring Sheet* is a decision teachers make based on personal preference. For example, some teachers may decide to start by reviewing the "Organization/Structure and Communication" category first. This would involve reviewing the project to judge how the student met the criteria outlined in the rubric. These teachers might then move to the "Data Selection/Analysis" category and finally to the "Concepts/Reasoning" category. Other teachers may decide to start at the "Data Selection/Analysis" category then move to the "Organization/Structure and Communication" category followed by the "Concepts/Reasoning" category etc.

The "Consider the Following" section of the rubric is specific to each project. The items listed under the heading are not intended to be exhaustive but rather they are included to assist teachers in their marking.

> If the project is not submitted, then shade in the "no submission" bubble and do not shade in the "insufficient information" bubbles.

Consumer Mathematics (40S)—Project Scoring Rubric
Career Symposium Project

Consumer Mathematics (40S) PROJECT Scoring Rubric	Consider the Following:
Organization/Structure and Communication **Has the student communicated mathematical and other relevant information in a clear and organized way?** • Organization/Structure (effective use of introduction(s), sections and/or headings, conclusion(s) or summary statement(s)…) • Communication (effective use of charts, tables, graphs, etc. to display data and relevant information; clear presentation; effective use of terminology)	• Introduction, heading(s)/subheading(s), conclusion(s) • Presentation of any charts/tables/graphs… • Terminology related to budgeting
Data Selection/Analysis **Has the student selected and analysed data appropriately?** • Selection (required data selected) • Analysis (exploration of any relevant patterns or relationships, used mathematical procedures appropriately)	Data selected for: • Floor plan • Career category booths • Expenses: – ticket prices – auditorium rental – brochures • Number of visitors • Revenue from booths Analysis of: • Floor plan requirements • Categories of presenters • Estimated revenue from admission tickets • Estimated revenue from booth rentals • Number of visitors • Cost of brochures • Revenue, expenses and profit
Concepts/Reasoning **Has the student demonstrated an understanding of mathematical concepts as well as the ability to reason logically and draw appropriate conclusions?** • Concepts (demonstrated understanding of essential mathematical concepts…) • Reasoning (evidence reasoning/ logical thinking was involved in producing the project and in drawing appropriate conclusions…)	• Realistic report including budgeting (revenue, costs, profit) • Appropriate justifications/explanations/ conclusions • Realistic floor plan
Performance Level:	

Level 1 DESCRIPTORS	Level 2 DESCRIPTORS	Level 3 DESCRIPTORS
E.g.: • little (no) organization of ideas; limited (no) use of introductions, sections/headings, conclusion(s)/summary statement(s) • partially legible; important information/details missing; vague presentation; difficult to follow	E.g.: • most ideas organized; generally appropriate use of introductions, sections/headings, conclusion(s)/summary statement(s) • legible; most important information/details evident; generally effective presentation; can follow with little difficulty	E.g.: • exceptional organization of ideas; exemplary use of introductions, sections/headings, conclusion(s)/summary statement(s) • easy to read; all information/details evident; very effective presentation; easy to follow
E.g.: • limited selection of required data • limited (no) exploration of patterns/relationships; limited use of appropriate mathematical procedures (major computational errors)	E.g.: • most required data selected (minor omissions) • evidence patterns/relationships explored; generally used appropriate mathematical procedures (some computational errors)	E.g.: • all required data selected • insightful exploration of patterns/relationships; all mathematical procedures used were appropriate (only minor computational errors)
E.g.: • limited evidence that the student understood the relevant mathematical concepts • limited evidence of logical reasoning that led to appropriate conclusions; missing or incorrect justification(s)/explanation(s)	E.g.: • evidence that the student grasped the essential mathematical concepts • evidence of logical reasoning (some minor inconsistencies) that led to appropriate conclusions; some plausible justification(s)/explanation(s)	E.g.: • evidence that the student understood all relevant mathematical concepts • evidence of insightful and consistent reasoning that led to appropriate conclusions; clear and logical justification(s)/ explanation(s)

Level 1	Approaching Level 2	Level 2	Approaching Level 3	Level 3

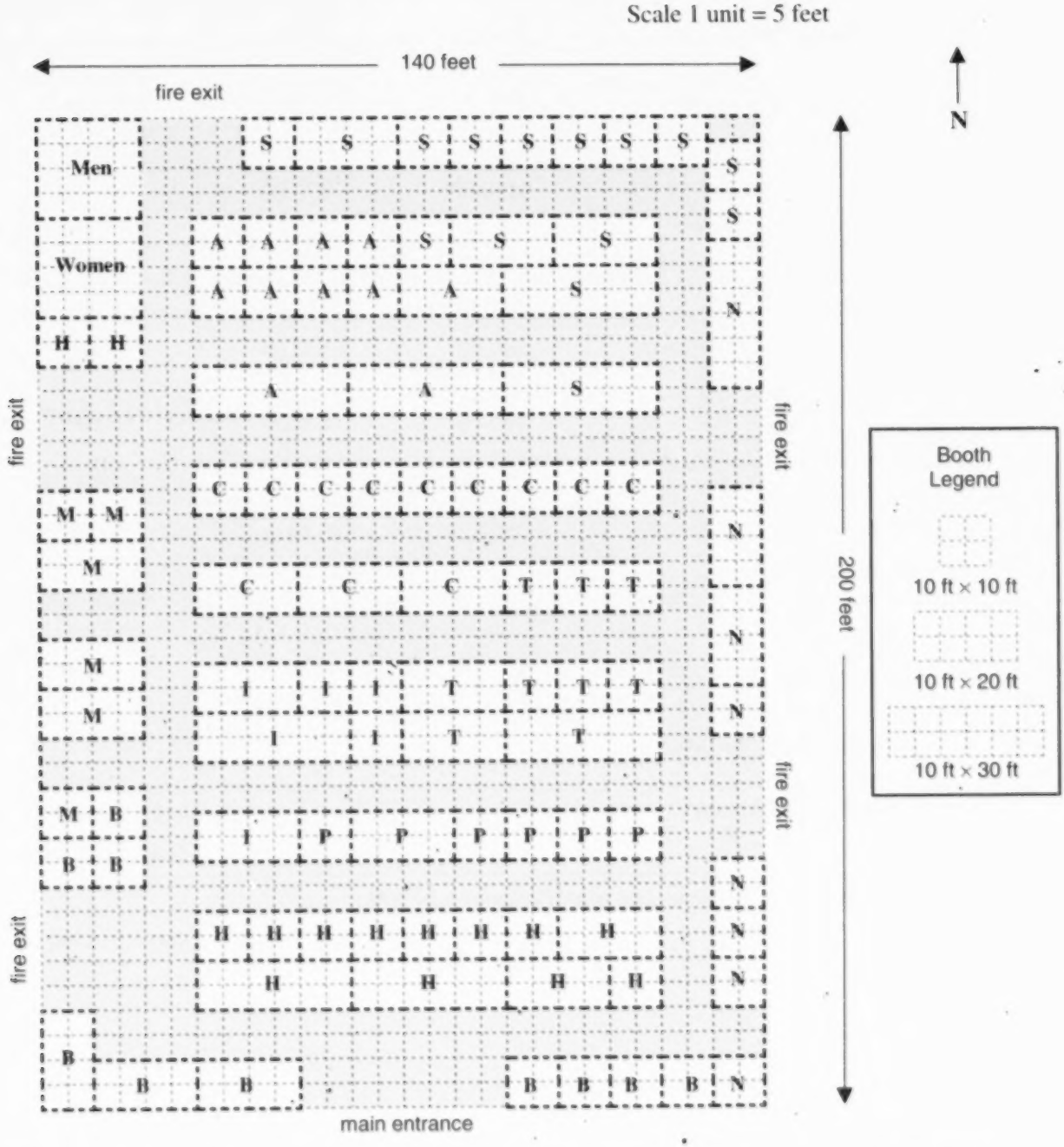
The Auditorium

I chose to go with the option of a flat fee of $3 000.00 for the one day of the symposium. I divided up the booths as follows:

Category	Symbol	Number Assigned	Size (in feet)	Possible Reasons
Management	M	3	10 × 10	This was purely for space reasons.
		3	10 × 20	
		0	10 × 30	
Business, Finance and Administration	B	7	10 × 10	I felt there was no need for any 10 × 30, in the business sector.
		3	10 × 20	
		0	10 × 30	
Natural and Applied Sciences	N	5	10 × 10	I gave a 10 × 30 to Sciences, because it is an important field.
		2	10 × 20	
		1	10 × 30	
Health	H	10	10 × 10	Health had high demands for space but not varied in its field. Its numbers were reduced.
		2	10 × 20	
		2	10 × 30	
Social Science, Education, Government Services, Religion	S	10	10 × 10	These were very diverse fields; I gave them lots of space
		3	10 × 20	
		2	10 × 30	
Art, Culture, Recreation and Sport	A	8	10 × 10	These were very diverse fields; I gave them lots of space
		1	10 × 20	
		2	10 × 30	
Sales and Service	C	9	10 × 10	There isn't much to present in this field, so its space was cut.
		3	10 × 20	
		0	10 × 30	
Trades, Transport and Equipment Operations	T	6	10 × 10	Trades and industry didn't demand much space, but they were cut for lack of space in the auditorium.
		2	10 × 20	
		1	10 × 30	
Industry	I	3	10 × 10	Trades and industry didn't demand much space, but they were cut for lack of space in the auditorium.
		2	10 × 20	
		1	10 × 30	
Processing, Manufacturing and Utilities	P	5	10 × 10	Tables were cut due to available space.
		1	10 × 20	
		0	10 × 30	

Sample Student Response

Auditorium Floor Plan



Note: Additional aisles must be a minimum of 10 feet wide.

Summary of Rental Revenue

	10 ft × 10 ft	10 ft × 20 ft	10 ft × 30 ft
Management	$45.00	$75.00	0
Business, Finance and Administration	$105.00	$75.00	0
Natural and Applied Sciences	$75.00	$50.00	$30.00
Health	$150.00	$50.00	$60.00
Social Science, Education, Government Services, Religion	$150.00	$75.00	$60.00
Art, Culture, Recreation and Sport	$120.00	$25.00	$60.00
Sales and Service	$135.00	$75.00	0
Trades, Transport and Equipment Operations	$90.00	$50.00	$30.00
Industry	$45.00	$50.00	$30.00
Processing, Manufacturing and Utilities	$75.00	$25.00	0
SUBTOTALS	$990.00	$550.00	$270.00
TOTAL: $1 810.00			

The Brochures

I decided to splurge on the brochures, to entice people to attend.

Development (tax included)	Artwork =	$150.00
	Word Processing =	$50.00
Paper Selection (bright colours, one sided) amount = 10 000		
Cost	10 000 × 0.080 =	$800.00

The Ticket Price

Due to the brochures I chose, the expected number of visitors at the symposium should be 4 000 students. To determine a ticket price, I need to calculate the costs:

Auditorium Rental =	- $3 000.00
Brochures =	- $1 000.00
	- $4 000.00
Booth Rentals =	+ $1 810.00
TOTAL	- $2 190.00

To break even, I need to charge:

$2 190.00 ÷ 4 000 students = 0.5475 or 55¢ per student.

However, I choose to charge 75¢ in case of unforeseen expenses and to reach my target profit.

Profit Statement

REVENUE		**EXPENSES**			
Booth Rentals	$1 810.00	Auditorium Rental	$3 000.00		
Ticket Sales 75¢ × 4 000 students	$3 000.00	Brochure Development	$200.00		
		Brochure Printing	$800.00		
TOTAL	$4 810.00	TOTAL	$4 000.00	**PROFIT**	**$810.00**

Senior 4 Consumer Mathematics (40S)
Standards Test

Written Test
Resource Package

2005

Manitoba
Building for the Future

RULER

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Manitoba Education, Citizenship and Youth,
Instruction, Curriculum and Assessment Branch,
Winnipeg, Manitoba R3E 3J5

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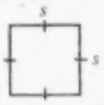
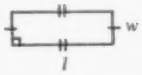
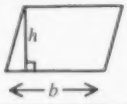
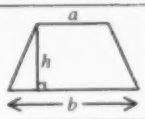
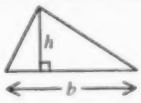
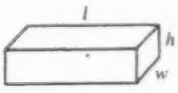
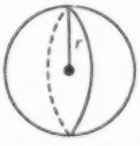
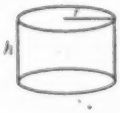
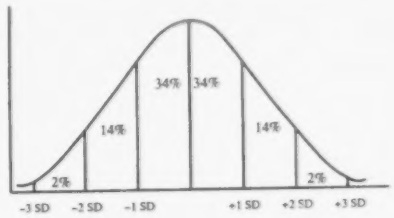
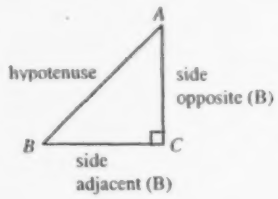
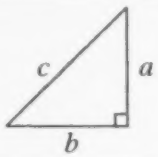
Formula List		
Name of Formula	**Diagram**	**Formula**
area of a square		$A = s^2$
area of a rectangle		$A = lw$
area of a parallelogram		$A = bh$
area of a trapezoid		$A = \frac{1}{2}(a+b)h$
area of a triangle		$A = \frac{1}{2}bh$
area of a circle		$A = \pi r^2$

surface area of a rectangular solid		$SA = 2lw + 2lh + 2wh$
volume of a rectangular solid		$V = lwh$
surface area of a sphere		$SA = 4\pi r^2$
volume of a sphere		$V = \frac{4}{3}\pi r^3$
surface area of a cone		$SA = \pi rs + \pi r^2$
volume of a cone		$V = \frac{1}{3}\pi r^2 h$
surface area of a cylinder		$SA = 2\pi rh + 2\pi r^2$
volume of a cylinder		$V = \pi r^2 h$
surface area of a pyramid		$SA = 2bs + b^2$
volume of a pyramid		$V = \frac{1}{3}b^2 h$

Formula List		
Name of Formula	**Diagram**	**Formula**
Normal Distribution		
Standard Deviation	Σ = sum S = standard deviation x = observed score $\bar{x}$ = mean n = total number of observations	$S = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$
Percentile Rank	B = number of raw scores below the given score E = number of raw scores equal to the given score, including the given score n = total number of raw scores	$P = \left(\frac{B+0.5E}{n}\right)\times 100$
Direct Variation	A = dependent variable k = constant of variation B = independent variable	$A = kB$
Inverse Variation	A = dependent variable k = constant of variation B = independent variable	$A = \frac{k}{B}$
Partial Variation	C = dependent variable k = constant of variation n = independent variable F = fixed value	$C = F + kn$

Gasoline Tax	Unleaded Gasoline: 11.5¢/L Heavy Vehicle Diesel Fuel: 10.9¢/L Gasohol: 9.0¢/L Propane: 3.0¢/L Aircraft Fuel: 3.2¢/L

Tobacco Taxes	Cigarette: 17.5¢ per cigarette Carton (200 cigarettes): $35 per carton Loose tobacco: 15¢ per gram

Formula List		
Name of Formula	**Diagram**	**Formula**
trigonometric formulas for right-angled triangles		$\sin \angle B = \frac{\text{side opposite}}{\text{hypotenuse}}$ $\cos \angle B = \frac{\text{side adjacent}}{\text{hypotenuse}}$ $\tan \angle B = \frac{\text{side opposite}}{\text{side adjacent}}$
Pythagorean Theorem for right triangles		$c^2 = a^2 + b^2$

Simple Interest	P = principal r = annual interest rate t = time in years I = interest	$I = Prt$
Compound Interest	A = *final amount* P = *principal* r = *annual interest rate* n = *number of times a year interest is compounded* t = *time in years*	$A = P\left(1 + \frac{r}{n}\right)^{nt}$
Gross Debt Service Ratio		$\text{GDSR} = \frac{\text{Monthly Mortgage Payment} + \text{Monthly Heating Cost} + \text{Monthly Property Taxes}}{\text{Gross Salary}} \times 100$
Debt Equity Ratio		$\text{DER} = \frac{\text{Total Liabilities} - \text{Mortgage}}{\text{Net Worth}} \times 100\ [= \%]$
Net Worth		Net Worth = Assets – Total Liabilities
Property Tax Rate		$\text{PTR} = \frac{\text{Total Revenue Required}}{\text{Total Portioned Assessment}} \times 1000\ [= \text{mills}]$

Temperature	F = degrees Fahrenheit C = degrees Celsius	$F = \frac{9}{5}C + 32$ $C = \frac{5}{9}(F - 32)$

Table 1: 10-Year Term Insurance

	Term Plus											
	Male Non-Smoker			Female Non-Smoker			Male Smoker			Female Smoker		
	Issue Rate per $1000			Issue Rate per $1000			Issue Rate per $1000			Issue Rate per $1000		
	$100 000	$250 000	$500 000	$100 000	$250 000	$500 000	$100 000	$250 000	$500 000	$100 000	$250 000	$500 000
AGE	$249 999	$499 999	$3 000 000	$249 999	$499 999	$3 000 000	$249 999	$499 999	$3 000 000	$249 999	$499 999	$3 000 000
20	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
21	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
22	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
23	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
24	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
25	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
26	0.86	0.82	0.78	0.80	0.76	0.73	1.47	1.40	1.34	1.33	1.27	1.21
27	0.87	0.83	0.79	0.80	0.76	0.73	1.52	1.44	1.39	1.34	1.28	1.22
28	0.88	0.84	0.80	0.80	0.76	0.73	1.56	1.49	1.42	1.35	1.29	1.23
29	0.89	0.85	0.81	0.80	0.76	0.73	1.61	1.53	1.46	1.36	1.30	1.24
30	0.90	0.86	0.82	0.80	0.76	0.73	1.65	1.57	1.51	1.38	1.31	1.25
31	0.96	0.91	0.87	0.86	0.82	0.78	1.78	1.69	1.62	1.47	1.40	1.34
32	1.02	0.97	0.93	0.92	0.87	0.84	1.91	1.82	1.74	1.57	1.50	1.43
33	1.08	1.03	0.98	0.98	0.93	0.89	2.05	1.95	1.86	1.67	1.58	1.52
34	1.14	1.08	1.04	1.04	0.99	0.95	2.18	2.07	1.98	1.77	1.68	1.62
35	1.20	1.14	1.09	1.10	1.05	1.00	2.31	2.20	2.10	1.87	1.78	1.71
36	1.34	1.27	1.22	1.17	1.11	1.06	2.60	2.46	2.37	2.02	1.93	1.84
37	1.48	1.41	1.35	1.24	1.18	1.13	2.88	2.74	2.62	2.18	2.07	1.98
38	1.62	1.54	1.47	1.31	1.24	1.19	3.17	3.01	2.88	2.33	2.21	2.12
39	1.76	1.67	1.60	1.38	1.31	1.26	3.45	3.28	3.15	2.49	2.37	2.27
40	1.90	1.81	1.73	1.45	1.38	1.32	3.74	3.55	3.40	2.64	2.51	2.40
41	2.06	1.96	1.87	1.56	1.48	1.42	4.22	4.02	3.84	2.90	2.76	2.64
42	2.22	2.11	2.02	1.67	1.59	1.52	4.71	4.48	4.28	3.17	3.01	2.88
43	2.38	2.26	2.17	1.78	1.69	1.62	5.19	4.93	4.73	3.43	3.26	3.12
44	2.54	2.41	2.31	1.89	1.80	1.72	5.68	5.39	5.17	3.70	3.51	3.37
45	2.70	2.57	2.46	2.00	1.90	1.82	6.16	5.85	5.61	3.96	3.76	3.61
46	3.03	2.88	2.76	2.23	2.12	2.03	6.60	6.27	6.01	4.49	4.27	4.08
47	3.36	3.19	3.06	2.46	2.34	2.24	7.04	6.69	6.40	5.02	4.76	4.57
48	3.69	3.51	3.36	2.69	2.56	2.45	7.48	7.11	6.81	5.54	5.27	5.05
49	4.02	3.82	3.66	2.92	2.77	2.66	7.92	7.52	7.21	6.07	5.76	5.52
50	4.35	4.13	3.96	3.15	2.99	2.87	8.36	7.94	7.61	6.60	6.27	6.01
51	4.88	4.64	4.44	3.40	3.23	3.09	9.26	8.80	8.43	7.24	6.88	6.59
52	5.41	5.14	4.92	3.65	3.47	3.32	10.16	9.66	9.25	7.88	7.48	7.17
53	5.94	5.64	5.41	3.90	3.71	3.55	11.07	10.52	10.07	8.51	8.09	7.74
54	6.47	6.15	5.89	4.15	3.94	3.78	11.97	11.37	10.89	9.15	8.69	8.33
55	7.00	6.65	6.37	4.40	4.18	4.00	12.87	12.23	11.72	9.79	9.31	8.91
56	7.60	7.22	6.92	4.91	4.66	4.47	13.60	12.91	12.38	10.52	9.99	9.57
57	8.20	7.79	7.46	5.42	5.15	4.93	14.32	13.61	13.04	11.24	10.68	10.23
58	8.80	8.36	8.01	5.93	5.63	5.40	15.05	14.30	13.70	11.97	11.37	10.89
59	9.40	8.93	8.55	6.44	6.12	5.86	15.77	14.98	14.36	12.69	12.06	11.55
60	10.00	9.50	9.10	6.95	6.60	6.32	16.50	15.68	15.02	13.42	12.75	12.21
61	11.60	11.02	10.56	7.86	7.47	7.15	18.70	17.77	17.02	14.87	14.12	13.53
62	13.20	12.54	12.01	8.77	8.33	7.98	20.90	19.86	19.02	16.32	15.51	14.85
63	14.80	14.06	13.47	9.68	9.20	8.81	23.10	21.95	21.02	17.78	16.89	16.18
64	16.40	15.58	14.92	10.59	10.06	9.64	25.30	24.04	23.02	19.23	18.27	17.50
65	18.00	17.10	16.38	11.50	10.93	10.47	27.50	26.13	25.03	20.68	19.65	18.82
66	19.60	18.62	17.84	12.41	11.79	11.29	29.70	28.22	27.03	22.13	21.02	20.14
67	21.10	21.14	19.29	13.32	12.65	12.12	31.90	30.31	29.03	23.58	22.41	21.46
68	22.80	21.66	20.75	14.23	13.52	12.95	34.10	32.40	31.03	25.04	23.78	22.78
69	24.40	23.18	22.20	15.14	14.38	13.78	36.30	34.49	33.03	26.49	25.17	24.10
70	26.00	24.70	23.66	16.05	15.25	14.61	38.50	36.58	35.04	27.94	26.54	25.42
71	27.60	26.22	25.12	16.96	16.11	15.43	40.70	38.67	37.04	29.39	27.92	26.75
72	29.20	27.74	26.57	17.87	16.98	16.26	42.90	40.76	39.04	30.84	29.30	28.07
73	30.80	29.26	28.03	18.78	17.84	17.09	45.10	42.85	41.04	32.30	30.68	29.39
74	32.40	30.78	29.48	19.69	18.71	17.92	47.30	44.94	43.04	33.75	32.07	30.71

Add policy fee of $75 per year
Semi-annual payment (multiply annual premium by 0.52)
Monthly payment (multiply annual premium by 0.09)

Table 2: Whole-Life Insurance

WHOLE-LIFE

Issue Age	Male Non-Smoker Issue Rate Per $1000 Premium Rate	Female Non-Smoker Issue Rate Per $1000 Premium Rate	Male Smoker Issue Rate Per $1000 Premium Rate	Female Smoker Issue Rate Per $1000 Premium Rate	Issue Age
18	3.50	2.82	4.31	3.13	18
19	3.54	2.85	4.41	3.20	19
20	3.60	2.89	4.51	3.26	20
21	3.96	3.04	4.72	3.44	21
22	4.07	3.20	4.93	3.62	22
23	4.17	3.35	5.15	3.81	23
24	4.28	3.51	5.36	3.99	24
25	4.38	3.66	5.57	4.17	25
26	4.61	3.86	5.88	4.41	26
27	4.82	4.05	6.19	4.66	27
28	5.05	4.25	6.49	4.90	28
29	5.26	4.44	6.80	5.15	29
30	5.46	4.64	7.11	5.39	30
31	5.76	4.90	7.56	5.72	31
32	6.03	5.16	8.01	6.04	32
33	6.30	5.41	8.45	6.37	33
34	6.59	5.67	8.90	6.69	34
35	7.11	5.93	9.35	7.02	35
36	7.32	6.31	10.04	7.50	36
37	7.78	6.70	10.74	7.98	37
38	8.25	7.08	11.43	8.47	38
39	8.71	7.47	12.13	8.95	39
40	9.28	7.85	12.82	9.43	40
41	9.75	8.42	13.86	10.14	41
42	10.32	8.99	14.90	10.85	42
43	10.90	9.55	15.95	11.55	43
44	11.48	10.12	16.99	12.26	44
45	12.40	10.69	18.03	12.97	45
46	12.81	11.21	19.15	13.68	46
47	13.55	11.73	20.28	14.38	47
48	14.28	12.26	21.38	15.09	48
49	15.02	12.78	22.49	15.79	49
50	16.34	13.30	23.61	16.50	50
51	16.70	14.03	25.06	17.44	51
52	17.63	14.76	26.52	18.38	52
53	18.56	15.49	27.97	19.32	53
54	19.51	16.22	29.43	20.26	54
55	21.15	16.95	30.88	21.20	55
56	21.79	17.93	32.73	22.39	56
57	23.17	18.91	34.57	23.58	57
58	24.53	19.89	36.42	24.78	58
59	25.89	20.87	38.26	25.97	59
60	27.70	21.85	40.11	27.16	60
61	29.32	23.21	42.40	28.71	61
62	31.39	24.57	44.70	30.25	62
63	33.45	25.93	46.99	31.80	63
64	35.52	27.29	49.29	33.34	64
65	37.58	28.65	51.58	34.89	65
66	39.73	30.08	54.48	36.29	66
67	41.95	31.59	56.60	37.74	67
68	44.33	33.17	58.81	39.25	68
69	46.83	34.82	61.12	40.82	69
70	49.45	36.57	63.51	42.45	70
71	52.22	38.39	65.96	44.15	71
72	55.15	40.31	68.56	45.91	72
73	58.23	42.33	71.23	47.75	73
74	61.50	44.45	74.01	49.66	74
75	64.94	46.67	76.89	51.65	75

Issue Age	Male Under 18 Issue Rate Per $1000 Premium Rate	Female Under 18 Issue Rate Per $1000 Premium Rate	Issue Age
0	1.75	1.53	0
1	1.78	1.56	1
2	1.80	1.59	2
3	1.89	1.63	3
4	1.98	1.67	4
5	2.05	1.71	5
6	2.12	1.75	6
7	2.24	1.82	7
8	2.35	1.89	8
9	2.47	1.97	9
10	2.58	2.05	10
11	2.71	2.16	11
12	2.83	2.27	12
13	3.01	2.34	13
14	3.19	2.41	14
15	3.31	2.50	15
16	3.42	2.58	16
17	3.48	2.68	17

Add policy fee of $75.00 per year.

Semi-annual payment (multiply annual premium by 0.52)
Monthly payment (multiply annual premium by 0.09)

Table 3: Cash Surrender Values

WHOLE-LIFE

MALE
Cash Surrender Value per $1000 of Sum Assured

Policy Year	Issue Age 20	25	30	35	40	45	50	55	60	65	70
1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0
5	1	1	1	2	3	5	7	9	11	15	18
6	2	3	4	6	8	14	18	23	28	35	41
7	4	6	8	11	14	23	29	36	44	54	64
8	6	8	11	15	20	32	40	50	61	74	87
9	7	10	14	19	25	40	51	64	78	94	110
10	8	13	18	24	30	49	62	77	94	113	133
11	10	15	21	28	36	58	73	91	111	133	156
12	14	21	29	38	52	91	109	130	152	175	201
13	17	27	37	48	68	124	145	168	193	218	245
14	21	34	44	58	83	157	181	207	234	260	290
15	24	40	52	68	99	190	217	246	275	303	335
16	28	46	60	78	115	223	252	284	316	345	380
17	33	54	73	94	141	256	288	323	356	387	424
18	39	62	86	110	167	289	324	362	397	430	469
19	44	69	99	126	193	322	360	401	438	472	514
20	50	77	112	142	219	355	396	439	479	515	558
21	55	85	125	158	245	388	432	478	520	557	603
22	63	96	140	181	284	405	451	499	544	587	626
23	71	107	154	204	324	423	470	520	568	616	650
24	78	117	169	226	363	440	489	541	592	645	673
25	86	128	183	249	403	458	508	562	616	675	698
26	94	139	198	272	442	475	527	582	640	705	726
27	105	154	217	312	458	493	546	603	664	734	756
28	116	168	236	353	474	510	565	624	688	764	794
29	127	183	254	393	490	528	583	645	712	793	841
30	138	197	273	434	506	545	602	666	736	823	906
31	149	212	292	474	522	563	621	687	760	852	1000
32	164	231	333	489	538	580	640	708	784	882	-
33	179	250	374	504	554	598	659	729	808	911	-
34	193	269	415	519	570	615	678	749	832	941	-
35	208	288	456	534	585	633	697	770	856	970	-
36	223	307	497	549	601	650	716	791	880	1000	-
37	242	348	511	564	617	668	735	812	904	-	-
38	261	389	526	579	633	685	754	833	928	-	-
39	280	429	540	594	649	703	773	854	952	-	-
40	299	470	554	609	665	720	792	875	976	-	-
41	318	511	589	624	681	738	811	896	1000	-	-
42	357	525	583	639	697	755	830	916	-	-	-
43	395	539	598	654	713	773	849	937	-	-	-
44	434	553	612	669	729	790	867	958	-	-	-
45	472	567	626	684	745	808	886	979	-	-	-
46	511	581	641	699	761	825	905	1000	-	-	-
47	525	595	655	714	777	843	924	-	-	-	-
48	539	609	669	729	793	860	943	-	-	-	-
49	553	623	684	745	809	878	962	-	-	-	-
50	567	637	698	760	825	895	981	-	-	-	-
51	581	651	713	775	841	913	1000	-	-	-	-
52	595	665	727	790	857	930	-	-	-	-	-
53	609	679	741	805	872	948	-	-	-	-	-
54	623	693	756	820	888	965	-	-	-	-	-
55	637	707	770	835	904	983	-	-	-	-	-
56	651	721	784	850	920	1000	-	-	-	-	-
57	665	735	799	865	936	-	-	-	-	-	-
58	679	749	813	880	952	-	-	-	-	-	-
59	693	762	828	895	968	-	-	-	-	-	-
60	707	776	842	910	984	-	-	-	-	-	-
61	721	790	856	925	1000	-	-	-	-	-	-
62	735	804	871	940	-	-	-	-	-	-	-
63	749	818	885	955	-	-	-	-	-	-	-
64	762	832	899	970	-	-	-	-	-	-	-
65	776	846	914	985	-	-	-	-	-	-	-
66	790	860	928	1000	-	-	-	-	-	-	-
67	804	874	943	-	-	-	-	-	-	-	-
68	818	888	957	-	-	-	-	-	-	-	-
69	832	902	971	-	-	-	-	-	-	-	-
70	846	916	986	-	-	-	-	-	-	-	-
71	860	930	1000	-	-	-	-	-	-	-	-
72	874	944	-	-	-	-	-	-	-	-	-
73	888	958	-	-	-	-	-	-	-	-	-
74	902	972	-	-	-	-	-	-	-	-	-
75	916	986	-	-	-	-	-	-	-	-	-
76	930	1000	-	-	-	-	-	-	-	-	-
77	944	-	-	-	-	-	-	-	-	-	-
78	958	-	-	-	-	-	-	-	-	-	-
79	972	-	-	-	-	-	-	-	-	-	-
80	986	-	-	-	-	-	-	-	-	-	-
	1000	-	-	-	-	-	-	-	-	-	-

FEMALE
Cash Surrender Value per $1000 of Sum Assured

Policy Year	Issue Age 20	25	30	35	40	45	50	55	60	65	70
1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0
4	1	1	1	1	2	4	5	7	9	12	16
5	1	2	3	5	7	11	14	19	24	30	37
6	3	4	6	8	11	18	23	30	38	48	58
7	4	6	9	12	16	25	33	42	52	65	79
8	6	8	11	15	20	32	42	53	67	83	100
9	7	10	14	19	24	40	51	65	81	100	121
10	9	12	16	22	29	47	60	76	95	118	142
11	12	17	23	30	42	75	91	111	133	158	186
12	15	22	29	38	55	103	122	146	171	199	231
13	18	27	36	46	68	131	154	181	208	239	275
14	20	32	42	55	81	160	185	216	246	280	319
15	23	37	49	63	94	188	216	251	284	320	364
16	28	44	59	76	116	216	247	285	321	361	408
17	32	50	70	89	138	244	278	320	359	401	453
18	37	56	80	103	159	273	310	355	397	442	497
19	41	63	91	116	181	301	341	390	434	482	542
20	46	69	102	129	203	329	372	425	472	523	586
21	52	78	114	149	237	348	393	448	498	555	627
22	59	87	126	168	272	367	414	471	525	587	669
23	65	96	138	188	306	387	435	494	551	618	710
24	71	105	151	207	341	406	456	517	578	650	752
25	78	114	163	226	375	425	477	540	604	682	793
26	87	126	179	262	393	444	498	563	630	714	834
27	96	139	195	297	411	463	519	586	657	746	876
28	105	151	212	332	429	482	539	609	683	777	917
29	114	163	228	367	446	502	560	632	710	809	959
30	124	176	244	402	464	521	581	655	736	841	1000
31	136	192	276	419	482	540	602	678	762	873	-
32	149	209	308	436	500	559	623	701	789	905	-
33	161	225	340	453	518	578	644	724	815	936	-
34	174	241	372	470	536	597	665	747	842	968	-
35	186	258	404	487	554	617	686	770	868	1000	-
36	202	287	421	505	571	636	707	798	894	-	-
37	219	316	438	522	589	655	728	816	921	-	-
38	235	345	455	539	607	674	749	839	947	-	-
39	252	375	472	556	625	693	770	862	974	-	-
40	268	404	489	573	643	712	791	885	1000	-	-
41	295	421	506	590	661	732	812	908	-	-	-
42	322	438	523	607	679	751	833	931	-	-	-
43	350	455	540	624	696	770	853	954	-	-	-
44	377	472	557	641	714	789	874	977	-	-	-
45	404	489	574	658	732	808	895	1000	-	-	-
46	421	506	591	675	750	827	916	-	-	-	-
47	438	523	608	692	768	847	937	-	-	-	-
48	455	540	625	710	786	866	958	-	-	-	-
49	472	557	642	727	804	885	979	-	-	-	-
50	489	574	659	744	821	904	1000	-	-	-	-
51	506	591	676	761	839	923	-	-	-	-	-
52	523	608	693	778	857	942	-	-	-	-	-
53	540	625	711	795	875	962	-	-	-	-	-
54	557	642	728	812	893	981	-	-	-	-	-
55	574	659	745	829	911	1000	-	-	-	-	-
56	591	676	762	846	929	-	-	-	-	-	-
57	608	693	779	863	946	-	-	-	-	-	-
58	625	711	796	880	964	-	-	-	-	-	-
59	642	728	813	897	982	-	-	-	-	-	-
60	659	745	830	915	1000	-	-	-	-	-	-
61	676	762	847	932	-	-	-	-	-	-	-
62	693	779	864	949	-	-	-	-	-	-	-
63	711	796	881	966	-	-	-	-	-	-	-
64	728	813	898	983	-	-	-	-	-	-	-
65	745	830	915	1000	-	-	-	-	-	-	-
66	762	847	932	-	-	-	-	-	-	-	-
67	779	864	949	-	-	-	-	-	-	-	-
68	796	881	966	-	-	-	-	-	-	-	-
69	813	898	983	-	-	-	-	-	-	-	-
70	830	915	1000	-	-	-	-	-	-	-	-
71	847	932	-	-	-	-	-	-	-	-	-
72	864	949	-	-	-	-	-	-	-	-	-
73	881	966	-	-	-	-	-	-	-	-	-
74	898	983	-	-	-	-	-	-	-	-	-
75	915	1000	-	-	-	-	-	-	-	-	-
76	932	-	-	-	-	-	-	-	-	-	-
77	949	-	-	-	-	-	-	-	-	-	-
78	966	-	-	-	-	-	-	-	-	-	-
79	983	-	-	-	-	-	-	-	-	-	-
80	1000	-	-	-	-	-	-	-	-	-	-

Every effort has been made to ensure the accuracy of the above values, but accuracy is not guaranteed. In the event of a discrepancy, the insurance policy governs.

Table 4: Tenant's Package Policy

Tenant's Package Policy ($500 deductible)		
All Areas – Manitoba		
Coverage Amount	**Standard Form**	**Comprehensive Form**
$25 000	$158.00	$200.00
$30 000	$174.00	$226.00
$35 000	$199.00	$252.00
$40 000	$212.00	$269.00
$45 000	$235.00	$298.00
$50 000	$254.00	$324.00
$55 000	$272.00	$346.00
$60 000	$293.00	$373.00
$65 000	$315.00	$400.00
$70 000	$337.00	$427.00
$75 000	$359.00	$454.00
Each additional $1000	$4.50	$5.50

$200 deductible – Increase premium by 10%

Table 5: Manitoba Homeowner's Insurance Rates

Manitoba Homeowner's Insurance Rates ($500 deductible)								
Boeckh Calculator	Metro Winnipeg		Area 2		Area 3		Area 4	
Amount	Standard	Comprehensive	Standard	Comprehensive	Standard	Comprehensive	Standard	Comprehensive
$ 50 000	195	214	147	161	196	216	261	287
$ 55 000	216	238	160	176	217	239	289	318
$ 60 000	237	260	173	190	237	261	315	347
$ 65 000	252	277	187	205	255	281	339	373
$ 70 000	266	303	200	220	270	297	359	395
$ 75 000	294	314	210	231	285	314	379	417
$ 80 000	310	323	221	243	302	332	402	462
$ 85 000	318	333	226	249	313	344	416	458
$ 90 000	324	349	231	254	324	356	431	474
$ 95 000	348	370	244	268	345	380	459	505
$100 000	364	393	260	286	361	397	480	528
$105 000	390	417	278	306	378	416	503	553
$110 000	402	441	293	322	393	432	523	575
$115 000	418	464	299	329	409	450	544	598
$120 000	436	487	309	340	424	466	564	620
$125 000	451	510	319	351	444	488	591	650
$130 000	472	543	339	373	466	513	620	682
$135 000	498	557	345	380	477	525	634	697
$140 000	523	580	358	394	496	546	660	726
$145 000	538	596	375	413	508	559	676	744
$150 000	550	604	385	424	520	572	692	761
$155 000	557	613	398	438	551	606	733	806
$160 000	565	622	413	454	569	626	757	833
$165 000	572	629	425	468	589	648	783	861
$170 000	590	647	441	485	609	670	810	891
$175 000	607	668	451	496	624	686	830	913
$180 000	620	686	466	513	648	713	862	948
$185 000	636	702	478	526	667	734	887	976
$190 000	652	717	492	541	705	776	938	1032
$195 000	678	742	504	554	720	792	958	1054
$200 000	692	771	519	571	726	799	966	1063
Additional Amounts per $1000 coverage	Add: $3.15	Add: $3.50	Add: $2.75	Add: $3.03	Add: $3.55	Add: $3.91	Add: $4.72	Add: $5.19

$200 deductible – Increase premium by 10%

Table 6: Amortization Period of Mortgage Loan When Paid Monthly

Amortization Period of Mortgage Loan (Blended payment of principal and interest per $1000 of loan)					
Interest Rate	**5 years**	**10 years**	**15 years**	**20 years**	**25 years**
4.00%	$18.40	$10.11	$7.38	$6.04	$5.26
4.25%	18.51	10.23	7.50	6.17	5.40
4.50%	18.62	10.34	7.63	6.30	5.53
4.75%	18.74	10.46	7.75	6.44	5.67
5.00%	18.85	10.58	7.88	6.57	5.82
5.25%	18.96	10.70	8.01	6.71	5.96
5.50%	19.07	10.82	8.14	6.84	6.10
5.75%	19.19	10.94	8.27	6.98	6.25
6.00%	19.30	11.07	8.40	7.12	6.40
6.25%	19.41	11.19	8.53	7.26	6.55
6.50%	19.53	11.31	8.66	7.41	6.70
6.75%	19.64	11.43	8.80	7.55	6.85
7.00%	19.75	11.56	8.93	7.70	7.00
7.25%	19.87	11.68	9.07	7.84	7.16
7.50%	19.98	11.81	9.21	7.99	7.32
7.75%	20.10	11.94	9.34	8.13	7.47
8.00%	20.21	12.06	9.48	8.28	7.63
8.25%	20.33	12.19	9.62	8.43	7.79
8.50%	20.45	12.32	9.76	8.59	7.95
8.75%	20.56	12.45	9.90	8.74	8.12
9.00%	20.68	12.58	10.05	8.89	8.28
9.25%	20.80	12.71	10.19	9.05	8.44
9.50%	20.91	12.84	10.33	9.20	8.61
9.75%	21.03	12.97	10.48	9.36	8.78
10.00%	21.15	13.10	10.62	9.52	8.94
10.25%	21.27	13.24	10.77	9.68	9.11
10.50%	21.38	13.37	10.92	9.84	9.28
10.75%	21.50	13.50	11.06	9.99	9.45
11.00%	21.62	13.64	11.21	10.16	9.63
11.25%	21.74	13.77	11.36	10.32	9.80
11.50%	21.86	13.91	11.51	10.48	9.97
11.75%	21.98	14.04	11.66	10.65	10.14
12.00%	22.10	14.18	11.82	10.81	10.32
12.25%	22.22	14.32	11.97	10.98	10.49
12.50%	22.34	14.46	12.12	11.14	10.67
12.75%	22.46	14.59	12.28	11.31	10.85
13.00%	22.58	14.73	12.43	11.48	11.02
13.25%	22.70	14.87	12.59	11.64	11.20
13.50%	22.82	15.01	12.74	11.81	11.38
13.75%	22.94	15.15	12.90	11.98	11.56
14.00%	23.07	15.29	13.06	12.15	11.74
14.25%	23.19	15.43	13.21	12.32	11.92
14.50%	23.31	15.58	13.37	12.49	12.10
14.75%	23.43	15.72	13.53	12.67	12.28
15.00%	23.56	15.86	13.69	12.84	12.46
15.25%	23.68	16.00	13.85	13.01	12.64
15.50%	23.80	16.15	14.01	13.18	12.83
15.75%	23.92	16.29	14.17	13.36	13.01
16.00%	24.05	16.44	14.33	13.53	13.19

*** Interest compounded semi-annually. Actual payment amount may differ slightly.**

Table 7: Canadian Dollar-Based Rates

Canadian Dollar Based Rates (CAN $)			
Bank Buying Rate	**Country**	**Currency**	**Bank Selling Rate**
0.8834	Australia	Dollar (AUD)	0.9338
1.5474	Austria	Euro	1.6108
0.4200	Brazil	Real	0.4724
0.1466	China	Yuan	0.1687
0.1971	Croatia	Kuna	0.2395
0.2048	Denmark	Krone (DKK)	0.2193
2.2751	England	Pound	2.3578
1.5474	France	Euro	1.6108
1.5474	Germany	Euro	1.6108
0.1547	Hong Kong	Dollar (HKD)	0.1730
0.00614	Hungary	Forint	0.00682
1.5474	Italy	Euro	1.6108
0.01153	Japan	Yen	0.01211
0.1111	Mexico	Peso	0.1171
2.2657	N. Ireland	Pound	2.3617
0.8389	New Zealand	Dollar (NZD)	0.8831
0.1795	Norway	Krone (NOK)	0.1938
0.3308	Saudi Arabia	Riyal	0.3630
2.2657	Scotland	Pound	2.3617
0.7378	Singapore	Dollar (SGD)	0.8008
0.1844	South Africa	Rand	0.2186
0.1687	Sweden	Krone (SEK)	0.1788
0.9931	Switzerland	Franc (CHF)	1.0539
0.0285	Thailand	Baht	0.0333
1.2779	United States	Dollar (USD)	1.3089

As of Thursday, September 16, 2004. Courtesy of Custom House Global Exchange.

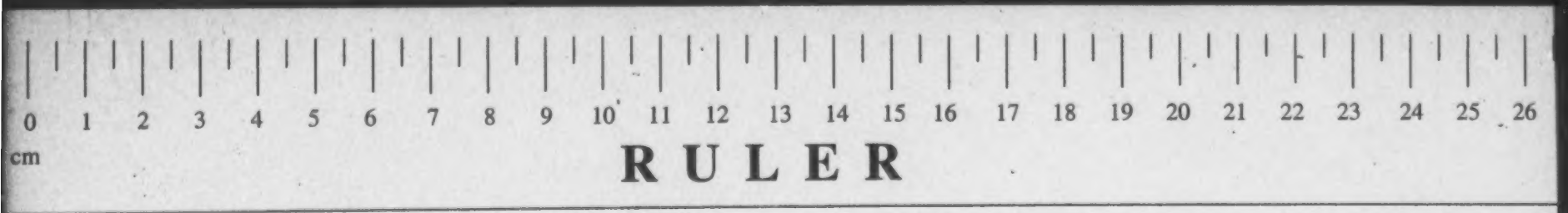
Note: 1. The following 12 countries all use the "Euro" as their currency (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain).

2. The following countries use the "Pound " as their currency (England, N. Ireland, Scotland and Wales).

Table 8: Customs Duties and Foreign Exchange

	Group	Custom Duties	Excise Taxes
Costume Jewellery	NAFTA[1]	0%	10% > $3.00 per item
	MFN[2]	8.5%	10% > $3.00 per item
	GP[3]	0%	0%
Tableclothes (flax)	NAFTA	0%	0%
	MFN	10%	0%
	GP	0%	0%
Wristwatches	NAFTA	0%	10% > $50.00 per item
	MFN	5%	10% > $50.00 per item
	GP	4%	10% > $50.00 per item
Precious Jewellery	NAFTA	0%	10%
	MFN	5.5%	10%
	GP	4%	10%
Foot Gear	NAFTA	0%	0%
	MFN	20%	0%
Plastic Trays	NAFTA	0%	0%
	MFN	10.5%	0%
	GP	6%	0%
Jeans	NAFTA	0%	0%
	MFN	20%	0%
	GP	None	0%
Metal Beds	NAFTA	0%	0%
	MFN	8%	0%
	GP	5%	0%
House Paint	NAFTA	0%	0%
	MFN	6.5%	0%
	GP	3%	0%
Cars	NAFTA	0%	$100.00 for air conditioning
	MFN	6.7%	$100.00 for air conditioning
	GP	6%	$100.00 for air conditioning

1 Trade agreement for "duty free" goods from U.S.A. and Mexico.
2 Most Favoured Nation includes most countries not listed under NAFTA and GP.
3 General Preferential (GP) status entitles China, India and many Latin American countries special lower rates for custom duties.



RULER

15361

Senior 4 Consumer Mathematics (40S)
Standards Test

Written Test
Student Booklet

June 2005

Manitoba
Building for the Future

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Senior 4 Consumer Mathematics (40S)
Standards Test—June 2005
Written Test Student Booklet

DESCRIPTION

Total Possible Marks: 39 **Maximum Time: 90 minutes**

This component of the test consists of six parts:

Learning Unit	Suggested Time to Complete	Marks
Personal Finance	10–15 minutes	8
Government Finances	10–15 minutes	7
Statistics	10–15 minutes	7
Variation and Formulas	10–15 minutes	7.5
Investments	10–15 minutes	7.5
Design and Measurement	10–15 minutes	2

GENERAL DIRECTIONS

- Students may use the resource package containing formulas and tables.
- Use of a scientific calculator and ruler may be necessary. Graphing calculators are not permitted.
- Read all instructions on the test carefully.
- **If you need more space to answer a question, extra pages may be provided by your teacher. Write your booklet ID number and question number on any extra page(s) used and staple the additional pages into the booklet where your answer begins.**

Remember to:

- show all your work in this booklet;
- use your resource package;
- use a scientific (non-graphing) calculator; and
- use a ruler.

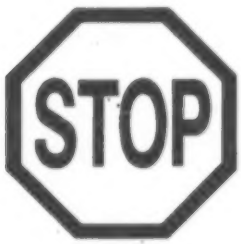
DIRECTIONS

- Show **complete answers** in the space(s) provided in your student booklet.
- Let the mark values for each question guide you in answering the question.
- Show all your work.
- Use your resource package.
- Provide explanations and justifications.
- Use a well-organized method to communicate your answer.

Directing Words

Some questions may include directing words such as *explain, illustrate,* and *calculate.* These words are explained below.

The Word	The question is asking for…
identify/list/name/state	a label or title of an item, concept or method
defend/justify/support	an explanation, information, or evidence that shows why your method, idea or answer is good
describe/explain/express	words or symbols, diagrams, a chart or graph, or other methods that **clearly shows** what you mean or what you are thinking
illustrate/sketch	a reasonably neat picture or diagram (not necessarily to scale) that shows or explains an idea or method
draw	a diagram to scale or graph that shows or explains an idea or method
calculate/convert /determine/find	a mathematical formula or algebraic equation or numerical calculation to solve a problem
plot	placement of a point or points on a graph



PLEASE WAIT UNTIL THE TEACHER TELLS YOU TO TURN THE PAGE.

DO NOT USE

Personal Finance

3 Marks

1. Robert Hill is a 56-year-old non-smoker who wishes to purchase life insurance. He has chosen a 10-year term insurance policy with a face value of $300 000 and wishes to have his 3 adult children pay for it.

   A) Calculate his annual premium. (2 marks) 117

   B) The children have chosen to pay the premium monthly. Calculate what each of his 3 children would pay if they equally shared the cost of the monthly payment. (1 mark) 118

DO NOT USE

1 Mark

2. Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller. 119

1 Mark

3. "The larger the down payment on a house, the less the home will cost in the long run." Explain the reasoning behind this statement. 120

DO NOT USE

3 Marks

4. Keith takes out an $80 000 mortgage at 6% per year, amortized over 20 years.

A) Calculate his total monthly payment. (1.5 marks) 121

B) Calculate the interest paid in the first month. (1 mark) 122

C) Calculate the owner's equity gained after the first month. (0.5 mark) 123

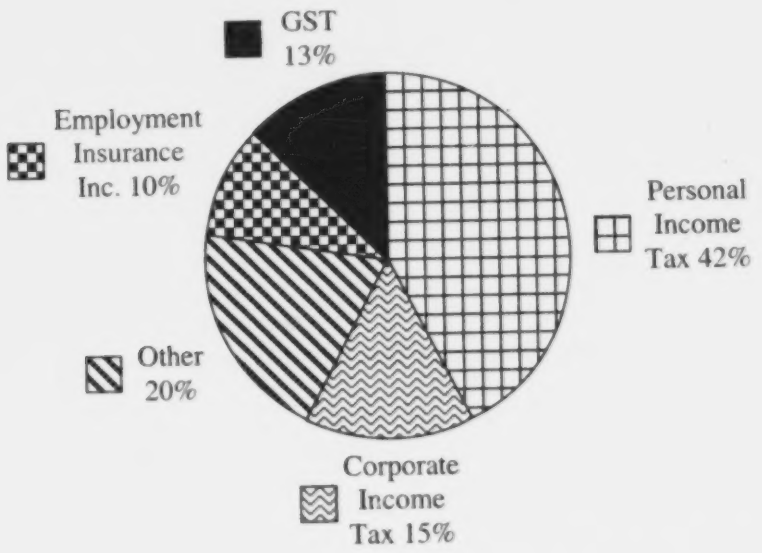
DO NOT USE

Government Finances

1 Mark

5. The federal government raised revenues totalling $206 400 000 000. Calculate how much of this revenue came from corporate income tax. 124

Federal Government Budgetary Revenue



A) $3 842 000 000
B) $30 960 000 000
C) $61 274 000 000
D) $63 497 000 000

Answer: _____

DO NOT USE

2 Marks

6. A student bought an authentic pair of American-made JJ jeans from an Internet store for $40 U.S.

A) Calculate the cost of the jeans in Canadian funds. (1 mark) 125

B) Calculate the total cost of the Internet purchase after importing the jeans to Canada. Assume there are no shipping costs. (1 mark) 126

1 Mark

7. Justine received 3 000 Euros as a graduation present from her European grandparents. State how many Canadian dollars Justine had after she exchanged her present into Canadian currency.

1 Mark

8. A driver purchased 40 litres of diesel fuel at a cost of 73.9¢ per litre. Calculate how much provincial fuel tax the driver paid.

DO NOT USE

2 Marks

9. Chris is considering buying a house. The house is worth $85 000 and the land is worth $20 000. The portioned percentage is 45% and the municipal mill rate is 19 mills.

A) Calculate the portioned assessment. (1 mark) 129

B) Calculate the municipal tax payable. (1 mark) 130

Statistics

DO NOT USE

1.5 Marks

10. In a school division 1 250 students wrote an exam. Bill and 119 other students earned 100 out of a possible 125 points on the exam. There were 740 students who scored lower than Bill. Calculate Bill's percentile ranking. 131

1 Mark

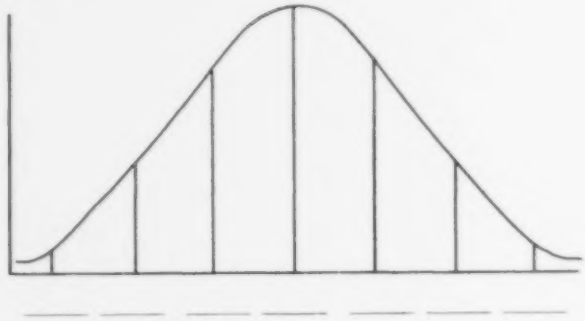
11. Your friend Maryse scored 82% on her entrance exam to the Faculty of Law. Students are accepted into the faculty if they score above the 75th percentile on the exam. If Maryse asks if you think she will be accepted, how would you answer her? 132

DO NOT USE

2 Marks

12. The tread life of a tire has a normal distribution. Its mean tread life is 120 000 km with a standard deviation of 5 000 km.

A) Label the normal distribution curve. (0.5 mark) 133



B) Find the percent of tires that have a tread life of less than 115 000 km. (0.5 mark) 134

C) Determine how many tires would have a tread life of more than 130 000 km if 30 000 tires are manufactured. (1 mark) 135

DO NOT USE

1.5 Marks

13. On a recent test, Mary's class had a mean of 68% and a standard deviation of 5%. Bob's class had a mean of 72% but a standard deviation of 12%. Both classes have the same number of students. Determine which class was more likely to have a higher failure rate. Support your answer. 136

1 Mark

14. Two data sets share a correlation coefficient of 0.98. Identify the type and strength of the correlation. 137

Variation and Formulas

DO NOT USE

1 Mark

15. Manuel kicks a pebble into the water from the highest cliff at a resort. The pebble is in the air for 3.2 seconds. Determine the distance the pebble falls using the formula $d = 4.9\ t^2$ where d = distance fallen (m) and t = time spent falling (s). 138

1 Mark

16. Convert 8° Fahrenheit (F) to the equivalent temperature in Celsius (C). 139

DO NOT USE

3 Marks

17. Time varies inversely with speed. If you travel 120 km/h, it takes 3.5 hours to reach your destination.

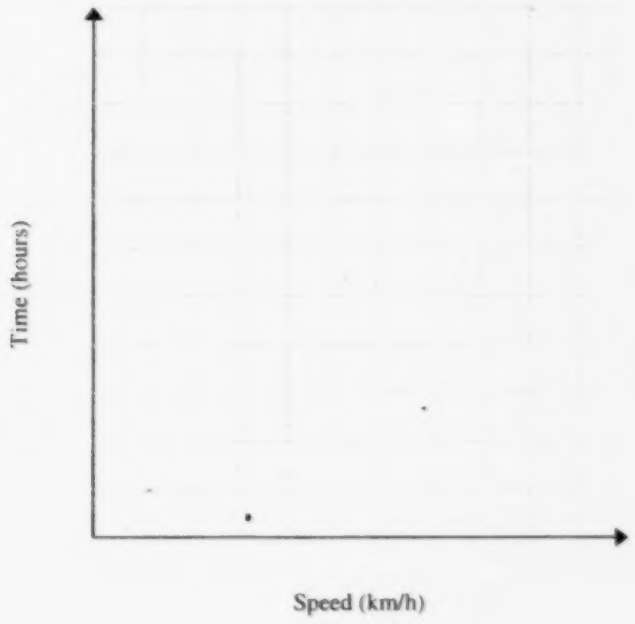
A) Calculate the constant of variation. (1 mark) 140

B) Complete the table below which shows the time it takes to reach your destination at different speeds. (2 × 0.5 mark) 141

speed (km/h)	140	120		70
time (hours)		3.5	4.2	6

C) Draw a graph showing speed versus time. Use the information from the table above. (1 mark) 142

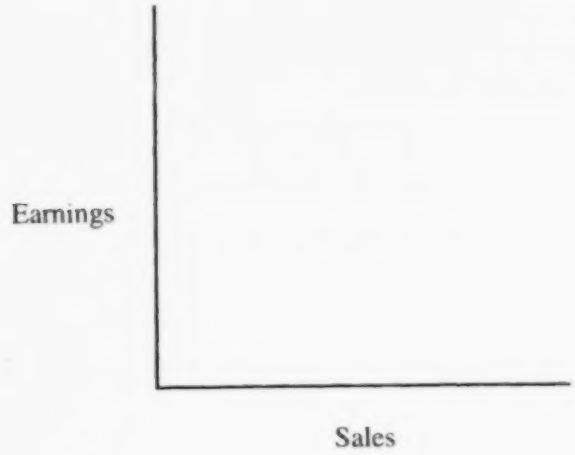
Relationship between speed and time



DO NOT USE

1 Mark

18. Eric earns $50.00 per day plus $2.00 for every CD that he sells. Sketch the partial variation of earnings versus sales. 143



1.5 Marks

19. Determine the diameter of a sphere that has a surface area of 1 250 cm^2. 144

DO NOT USE

Investments

2 Marks

20. Jasmine, who is 18 years old, has $1 000 to invest.

A) State one reason why she might prefer to purchase a term deposit or a G.I.C. instead of investing money in a chequing account. (1 mark) 145

B) State a reason why she might invest the money in a chequing account. (1 mark) 146

DO NOT USE

3 Marks

21. Fred and Barney are comparing their investment portfolios. Fred's portfolio is composed of higher risk items. In contrast, Barney's portfolio items are lower risk.

A) List 2 potential investment items in each portfolio. (2 marks) 147

Fred	Barney

B) Describe two possible reasons why Fred has chosen a higher risk portfolio. (1 mark) 148

DO NOT USE

1.5 Marks

22. Sean owns 400 shares of Winpower Corporation. He sells them for $12.50 each. He must pay a commission of 3% of the total transaction. How much money does Sean receive after the transaction? 149

1 Mark

23. Daniel has applied for a loan. Daniel's Debt Equity Ratio has been calculated to be 40%. Will Daniel be considered for this loan? Why or why not? 150

DO NOT USE

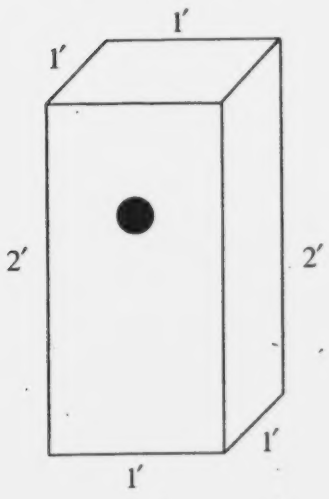
Design and Measurement

2 Marks

24. A) Calculate how many duck nesting boxes an environmental group can build using a sheet of 4' × 8' plywood. (1.5 marks) 151
Each box will have:

Nesting Box	Roof	Floor	Sides
	1' × 1'	1' × 1'	2' × 1'
(one side will have a circle cut out of it for an entrance)			

Diagram of Nesting Box



B) Calculate how much each box will cost if the plywood costs $25 per sheet (including taxes). (0.5 mark) 452

DO NOT USE

DO NOT USE

DO NOT USE

Senior 4 Consumer Mathematics (40S)
Standards Test

Written Test
Marking Guide

June 2005

Manitoba
Building for the Future

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Irregular Test Paper Report 57

Marking Guidelines

The marking guide for the Written Test for the Senior 4 Consumer Mathematics (40S) Standards Test is based on the outcomes and standards found in the *Senior 4 Mathematics: Outcomes and Standards* document (2001).

The recommended procedure for scoring student responses is as follows:

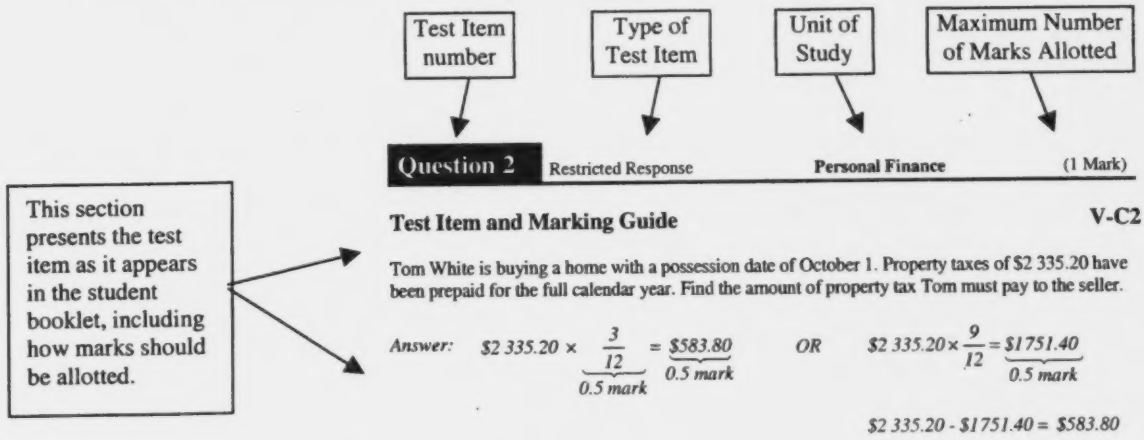
1. Read the *Written Test Marking Guide*.
2. Study the student samples provided and the rationales for the allotted scores.
3. Determine the mark for the student's response by comparing its features with the *Written Test Marking Guide* descriptions. The descriptions and samples only typify a student's response to a given question; an exact match is not anticipated.

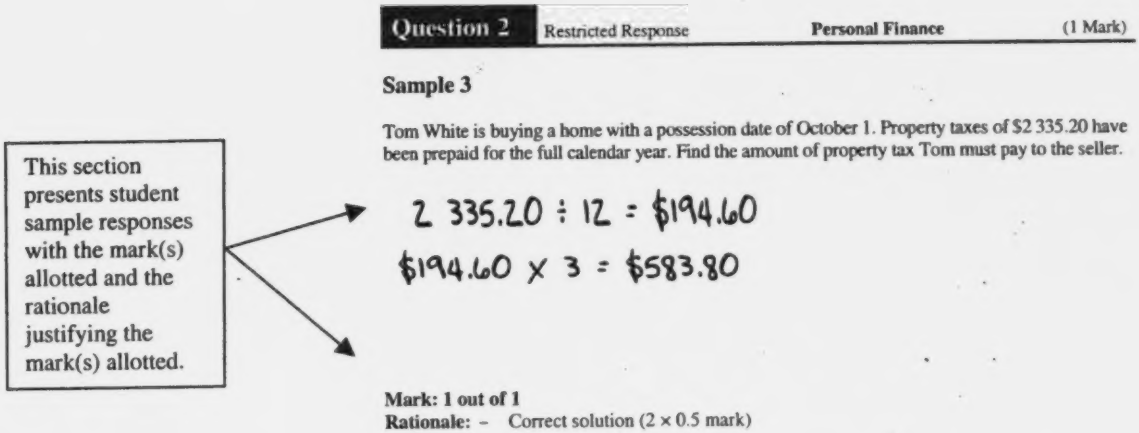
Irregularities in Standards Tests

During the administration of standards tests, supervising teachers may encounter irregularities. Markers may also encounter irregularities during local marking sessions. Appendix A provides examples of such irregularities as well as procedures to follow to report irregularities.

Presentation of the Student Samples

Each constructed-response question is presented using the following sections:


Test Item number
Type of Test Item
Unit of Study
Maximum Number of Marks Allotted
Question 2
Restricted Response
Personal Finance
(1 Mark)
This section presents the test item as it appears in the student booklet, including how marks should be allotted.
Test Item and Marking Guide
V-C2
Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller.
Answer: $2 335.20 × 3/12 = $583.80
0.5 mark
0.5 mark
OR
$2 335.20 × 9/12 = $1751.40
0.5 mark
$2 335.20 - $1751.40 = $583.80


Question 2
Restricted Response
Personal Finance
(1 Mark)
This section presents student sample responses with the mark(s) allotted and the rationale justifying the mark(s) allotted.
Sample 3
Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller.
2 335.20 ÷ 12 = $194.60
$194.60 x 3 = $583.80
Mark: 1 out of 1
Rationale: – Correct solution (2 × 0.5 mark)

Personal Finance

Question 1 Extended Restricted Response **Personal Finance** (3 Marks)

♦ Test Item and Marking Guide V-C1

Robert Hill is a 56-year-old non-smoker who wishes to purchase life insurance. He has chosen a 10-year term insurance policy with a face value of $300 000 and wishes to have his 3 adult children pay for it.

A) Calculate his annual premium. (2 marks)

Answer:

$$\underbrace{\frac{\$300\,000}{1\,000}}_{0.5\text{ mark}} \times \underbrace{7.22}_{0.5\text{ mark}} = \$2\,166$$

$$\$2\,166 + \underbrace{\$75}_{0.5\text{ mark}} = \underbrace{\$2\,241}_{0.5\text{ mark}}$$

B) The children have chosen to pay the premium monthly. Calculate what each of his 3 children would pay if they equally shared the cost of the monthly payment. (1 mark)

Answer:

$$\$2\,241 \times 0.09 = \underbrace{\$201.69}_{0.5\text{ mark}}$$

$$\$201.69 \div 3 = \underbrace{\$67.23}_{0.5\text{ mark}}$$

♦ Sample 1

Robert Hill is a 56-year-old non-smoker who wishes to purchase life insurance. He has chosen a 10-year term insurance policy with a face value of $300 000 and wishes to have his 3 adult children pay for it.

A) Calculate his annual premium. (2 marks)

$7.22 \times 10 = \$72.20 + \$75.00 = \underline{\$147.20}$

B) The children have chosen to pay the premium monthly. Calculate what each of his 3 children would pay if they equally shared the cost of the monthly payment. (1 mark)

$147.20 \times 1.09 = \frac{\$160.45}{3} = \underline{\underline{\$53.48}}$

Mark: 2 out of 3

Rationale:
- Correct table value in Part A (0.5 mark)
- Correct policy fee in Part A (0.5 mark)
- Correct total in Part A (follow-through error) (0.5 mark)
- Correct answer in Part B (follow-through error) (0.5 mark)

♦ Sample 2

Robert Hill is a 56-year-old non-smoker who wishes to purchase life insurance. He has chosen a 10-year term insurance policy with a face value of $300 000 and wishes to have his 3 adult children pay for it.

A) Calculate his annual premium. (2 marks)

$\frac{300\,000}{1000} \times 7.22 = \$2166.00$

B) The children have chosen to pay the premium monthly. Calculate what each of his 3 children would pay if they equally shared the cost of the monthly payment. (1 mark)

$\$2166.00 \times 0.09 = \$194.94$

$\$194.44 \div 3 = \$64.98$

Mark: 2.5 out of 3

Rationale: – Correct annual premium without policy fee (3 × 0.5 mark)
– Correct monthly payment with follow-through error (2 × 0.5 mark)

♦ Sample 3

Robert Hill is a 56-year-old non-smoker who wishes to purchase life insurance. He has chosen a 10-year term insurance policy with a face value of $300 000 and wishes to have his 3 adult children pay for it.

A) Calculate his annual premium. (2 marks)

$= 7.22 \times \left(\frac{300\,000}{1\,000}\right)$

$= 2\,166 + 75$

$= 2\,241$

B) The children have chosen to pay the premium monthly. Calculate what each of his 3 children would pay if they equally shared the cost of the monthly payment. (1 mark)

$= 2\,241 \times .09$

$= 201.69$

Mark: 2.5 out of 3

Rationale: - Correct annual premium in Part A (4 × 0.5 mark)
- Correct monthly factor in Part B (0.5 mark)

Question 2 Restricted Response **Personal Finance** (1 Mark)

♦ Test Item and Marking Guide **V-C3**

Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller.

Answer: $\$2\,335.20 \times \underbrace{\frac{3}{12}}_{0.5\ mark} = \underbrace{\$583.80}_{0.5\ mark}$ *OR* $\$2\,335.20 \times \frac{9}{12} = \underbrace{\$1751.40}_{0.5\ mark}$

$\$2\,335.20 - \$1751.40 = \underbrace{\$583.80}_{0.5\ mark}$

Question 2 Restricted Response **Personal Finance** (1 Mark)

♦ Sample 1

Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller.

$\$2\,335.20 \div 12 = \$194.60$

Mark: 0.5 out of 1
Rationale: – Correct monthly cost (0.5 mark)

Question 2 Restricted Response **Personal Finance** (1 Mark)

♦ Sample 2

Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller.

$\$2\,335.20 \times \frac{9}{12} = \$1\,751.40$

Mark: 0.5 out of 1
Rationale: – Correct share for seller (0.5 mark)

Question 2 Restricted Response **Personal Finance** (1 Mark)

♦ Sample 3

Tom White is buying a home with a possession date of October 1. Property taxes of $2 335.20 have been prepaid for the full calendar year. Find the amount of property tax Tom must pay to the seller.

2 335.20 ÷ 12 = $194.60

$194.60 x 3 = $583.80

Mark: 1 out of 1
Rationale: – Correct solution (2 × 0.5 mark)

Question 3 Open Response **Personal Finance** (1 Mark)

♦ Test Item and Marking Guide **V-C3**

"The larger the down payment on a house, the less the home will cost in the long run." Explain the reasoning behind this statement.

Sample Answers:
- *Less interest is paid*
- *Smaller mortgage*

Question 3 Open Response **Personal Finance** (1 Mark)

♦ Sample 1

"The larger the down payment on a house, the less the home will cost in the long run." Explain the reasoning behind this statement.

The reasoning behind the statement is, by paying the bills on the house, insurance, mortgage payments, loans, homeowners insurance, etc...
It will cost you less on the house you purchased than later on in the future. (Less money on the payment for the house and more money for your self.)

Mark: 0 out of 1
Rationale: – Incorrect explanation

Question 3 Open Response **Personal Finance** (1 Mark)

♦ Sample 2

"The larger the down payment on a house, the less the home will cost in the long run." Explain the reasoning behind this statement.

Because the more money that you borrow from the bank the higher the interest you have to pay. And the more money that you save for the down payment the less you need from the bank.

Mark: 1 out of 1
Rationale: – Correct justification (1 mark)

Question 3 Open Response **Personal Finance** (1 Mark)

♦ Sample 3

"The larger the down payment on a house, the less the home will cost in the long run." Explain the reasoning behind this statement.

If you pay a lot of money towards the price of the home before you actually start paying for it, then you will have to make less payments. For example if the purchase price of the house is $50 000 and you make a down payment of 20 000 then you only have a $30 000 mortgage left to pay.

Mark: 1 out of 1
Rationale: – Correct justification (1 mark)

Question 4 Restricted Response **Personal Finance** (3 Marks)

♦ Test Item and Marking Guide **V-C2**

Keith takes out an $80 000 mortgage at 6% per year, amortized over 20 years.

A) Calculate his total monthly payment. (1.5 marks)

Answer: $\underbrace{\frac{80\,000}{1000}}_{0.5\ mark} \times \underbrace{7.12}_{0.5\ mark} = \underbrace{\$569.60}_{0.5\ mark}$

B) Calculate the interest paid in the first month. (1 mark)

Answer: $\$80\,000 \times \underbrace{\frac{0.06}{12}}_{0.5\ mark} = \underbrace{\$400}_{0.5\ mark}$

C) Calculate the owner's equity gained after the first month. (0.5 mark)

Answer: $\$569.60 - \$400 = \underbrace{\$169.60}_{0.5\ mark}$

♦ Sample 1

Keith takes out an $80 000 mortgage at 6% per year, amortized over 20 years.

A) Calculate his total monthly payment. (1.5 marks)

80 × 7.26 = $580.80

B) Calculate the interest paid in the first month. (1 mark)

$580.80 × 0.06 = $34.85

C) Calculate the owner's equity gained after the first month. (0.5 mark)

$34.85

Mark: 1 out of 3
Rationale: – Correct division and product in Part A (follow-through error) (2 × 0.5 mark)
– Incorrect solutions in Parts B and C

- **Sample 2**

Keith takes out an $80 000 mortgage at 6% per year, amortized over 20 years.

A) Calculate his total monthly payment. (1.5 marks)

$$\frac{80\,000}{1\,000} \times 7.12 = \$569.60$$

B) Calculate the interest paid in the first month. (1 mark)

$\$569.60 \times 0.006 = \$3.418$

$\$3.418 \div 12 = \$2.85$

C) Calculate the owner's equity gained after the first month. (0.5 mark)

$\$569.60 - 2.85 = \$566.75$

Mark: 2.5 out of 3

Rationale:
- Correct monthly payment in Part A (3 × 0.5 mark)
- Correct use of monthly interest rate in Part B (0.5 mark)
- Follow-through error in Part C (0.5 mark)

♦ Sample 3

Keith takes out an $80 000 mortgage at 6% per year, amortized over 20 years.

A) Calculate his total monthly payment. (1.5 marks)

80 000 × 7.12 ÷ 1000 = $569.60

B) Calculate the interest paid in the first month. (1 mark)

80 000 ÷ 12 = $6666.67 × 0.06 = $400

C) Calculate the owner's equity gained after the first month. (0.5 mark)

$169.60

Mark: 3 out of 3

Rationale:
- Correct monthly payment in Part A (3 × 0.5 mark)
- Correct solution in Part B (2 × 0.5 mark)
- Correct solution in Part C (0.5 mark)

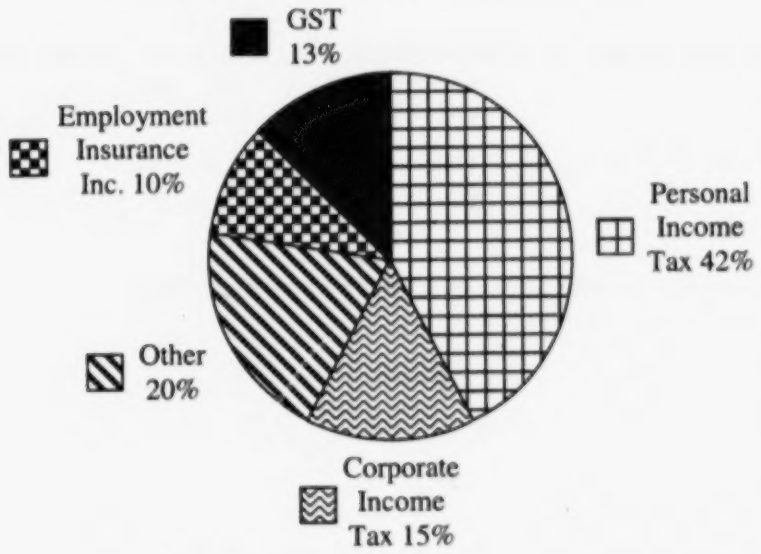
Government Finances

Question 5 Multiple Choice **Government Finances** (1 Mark)

♦ **Test Item and Marking Guide** **V-E2**

The federal government raised revenues totalling $206 400 000 000. Calculate how much of this revenue came from corporate income tax.

Federal Government Budgetary Revenue



A) $3 842 000 000
B) $30 960 000 000
C) $61 274 000 000
D) $63 497 000 000

Answer: B

Question 6 Restricted Response **Government Finances** (2 Marks)

♦ Test Item and Marking Guide **V-E3**

A student bought an authentic pair of American-made JJ jeans from an Internet store for $40 U.S.

A) Calculate the cost of the jeans in Canadian funds. (1 mark)

Answer: $40 \times \underbrace{1.3089}_{0.5\ mark} = \underbrace{\$52.36}_{0.5\ mark}$

B) Calculate the total cost of the Internet purchase after importing the jeans to Canada (assume there are no shipping costs). (1 mark)

Answer: $\$52.36 \times \underbrace{1.07}_{0.5\ mark} = \underbrace{\$56.03}_{0.5\ mark}$ *OR* $\$52.36 \times 0.07 = \underbrace{\$3.67}_{0.5\ mark}$

$\$52.36 + 3.67 = \underbrace{\$56.03}_{0.5\ mark}$

Note to marker : no excise tax, no customs duty, but GST is 7%

Question 6 Restricted Response **Government Finances** (2 Marks)

♦ Sample 1

A student bought an authentic pair of American-made JJ jeans from an Internet store for $40 U.S.

A) Calculate the cost of the jeans in Canadian funds. (1 mark)

$40 × 1.2779 = $51.12

B) Calculate the total cost of the Internet purchase after importing the jeans to Canada (assume there are no shipping costs). (1 mark)

$51.12 × 14% = $7.16

+ 7.16

$58.28

Mark: 1 out of 2

Rationale: – Correct solution with follow-through error in Part A (0.5 mark)
– Correct solution with follow-through error in Part B (0.5 mark)

Question 6 Restricted Response **Government Finances** (2 Marks)

- **Sample 2**

A student bought an authentic pair of American-made JJ jeans from an Internet store for $40 U.S.

A) Calculate the cost of the jeans in Canadian funds. (1 mark)

1.3089 × 40 = $52.36

COSTS $52.36 CANADIAN

B) Calculate the total cost of the Internet purchase after importing the jeans to Canada (assume there are no shipping costs). (1 mark)

$52.36 CANADIAN AFTER IMPORTING IT. (TOTAL COST

Mark: 1 out of 2
Rationale: – Correct solution in Part A (2 × 0.5 mark)

Question 6 Restricted Response **Government Finances** (2 Marks)

- **Sample 3**

A student bought an authentic pair of American-made JJ jeans from an Internet store for $40 U.S.

A) Calculate the cost of the jeans in Canadian funds. (1 mark)

$40 × 1.3089 (selling) = $52.356
= $52.356 is the cost.

B) Calculate the total cost of the Internet purchase after importing the jeans to Canada (assume there are no shipping costs). (1 mark)

$52.36 × 0.07 GST = $3.67
$52.36 × 0.07 PST = $3.67
$52.36 + 3.67 + 3.67 = $59.70 total cost of purchase

Mark: 1.5 out of 2
Rationale: – Correct solution in Part A (no deduction for money presented to 3 decimal places) (2 × 0.5 mark)
– Correct determination of GST in Part B (0.5 mark)

Question 7 Restricted Response **Government Finances** (1 Mark)

♦ Test Item and Marking Guide **V-E4**

Justine received 3 000 Euros as a graduation present from her European grandparents. State how many Canadian dollars Justine had after she exchanged her present into Canadian currency.

Answer: $3\,000 \times \underbrace{1.5474}_{0.5\ mark} = \underbrace{\$4\,642.20}_{0.5\ mark}$

Question 7 Restricted Response **Government Finances** (1 Mark)

♦ Sample 1

Justine received 3 000 Euros as a graduation present from her European grandparents. State how many Canadian dollars Justine had after she exchanged her present into Canadian currency.

3000 x 1.6108=$4832.40

Mark: 0.5 out of 1
Rationale: – Correct solution with incorrect table value (0.5 mark)

Question 7 Restricted Response **Government Finances** (1 Mark)

♦ Sample 2

Justine received 3 000 Euros as a graduation present from her European grandparents. State how many Canadian dollars Justine had after she exchanged her present into Canadian currency.

3000 ÷ 1.5474 = $1 938.74

Mark: 0.5 out of 1
Rationale: – Correct table value (0.5 mark)

Question 8 Restricted Response **Government Finances** (1 Mark)

- **Test Item and Marking Guide** **V-E5**

A driver purchased 40 litres of diesel fuel at a cost of 73.9¢ per litre. Calculate how much provincial fuel tax the driver paid.

Answer: $40 \times \underbrace{0.109}_{0.5\ mark} = \underbrace{\$4.36}_{0.5\ mark}$

Question 8 Restricted Response **Government Finances** (1 Mark)

- **Sample 1**

A driver purchased 40 litres of diesel fuel at a cost of 73.9¢ per litre. Calculate how much provincial fuel tax the driver paid.

$73.9 \times 0.40 = \$29.56$

$\$29.56 \times 1.14 = \$33.70$

Mark: 0 out of 1
Rationale: – Incorrect solution

Question 8 Restricted Response **Government Finances** (1 Mark)

- **Sample 2**

A driver purchased 40 litres of diesel fuel at a cost of 73.9¢ per litre. Calculate how much provincial fuel tax the driver paid.

$40 \times 0.115 = 4.60$

Mark: 0.5 out of 1
Rationale: – Correct solution with follow-through error (0.5 mark)

Question 8 Restricted Response **Government Finances** (1 Mark)

♦ Sample 3

A driver purchased 40 litres of diesel fuel at a cost of 73.9¢ per litre. Calculate how much provincial fuel tax the driver paid.

40 litres x 10.9 ¢ = $4.36

Mark: 0.5 out of 1
Rationale: – Correct table value (0.5 mark)

Question 9 Restricted Response **Government Finances** (2 Marks)

♦ Test Item and Marking Guide **V-E6**

Chris is considering buying a house. The house is worth $85 000 and the land is worth $20 000. The portioned percentage is 45% and the municipal mill rate is 19 mills.

A) Calculate the portioned assessment. (1 mark)

Answer: $85\,000 + 20\,000 = \underbrace{105\,000}_{0.5\ mark}$

OR

$105\,000 \times 0.45 = \underbrace{47\,250}_{0.5\ mark}$

$85\,000 \times 0.45 = 38\,250$
$20\,000 \times 0.45 = 9\,000$
$47\,250$

0.5 mark for multiplying by 45%
0.5 mark for addition

B) Calculate the municipal tax payable. (1 mark)

Answer: $47\,250 \times \underbrace{\frac{19}{1\,000}}_{0.5\ mark} = \underbrace{\$897.75}_{0.5\ mark}$

Question 9 Restricted Response **Government Finances** (2 Marks)

♦ Sample 1

Chris is considering buying a house. The house is worth $85 000 and the land is worth $20 000. The portioned percentage is 45% and the municipal mill rate is 19 mills.

A) Calculate the portioned assessment. (1 mark)

85 000 + 20 000 = $105 000

$105 000 × 0.45 = $47 250

B) Calculate the municipal tax payable. (1 mark)

$47 250 × 0.19 = $8 977.50

Mark: 1.5 out of 2

Rationale: – Correct portion assessment in Part A (2 × 0.5 mark)
– Correct solution with follow-through error in Part B (0.5 mark)

Question 9 Restricted Response **Government Finances** (2 Marks)

♦ Sample 2

Chris is considering buying a house. The house is worth $85 000 and the land is worth $20 000. The portioned percentage is 45% and the municipal mill rate is 19 mills.

A) Calculate the portioned assessment. (1 mark)

$\frac{\$85\,000 \times 19}{1\,000} = \$1\,615$

$\frac{\$20\,000 \times 19}{1\,000} = \$380$

$1 615 + 380 = $1 995

B) Calculate the municipal tax payable. (1 mark)

$1 995 × 0.45 = $897.75

Mark: 1 out of 2

Rationale: – Incorrect solution in Part A
– Correct tax payable in Part B (alternate solution)

Statistics

Question 10 Restricted Response **Statistics** (1.5 Marks)

♦ Test Item and Marking Guide V-F2

In a school division 1 250 students wrote an exam. Bill and 119 other students earned 100 out of a possible 125 points on the exam. There were 740 students who scored lower than Bill. Calculate Bill's percentile ranking.

Answer:

$$P = \left[\frac{B + 0.5E}{n}\right] \times 100$$

OR

$$\left[\frac{740 + 0.5(120)}{1\,250}\right] \times 100$$

No marks for 1 correct substitution of B, E or n
OR
0.5 mark for any 2 correct substitutions of B, E or n
OR
1 mark for 3 correct substitutions of B, E and n

$$= 0.64 \times 100$$

$$= 64 \text{ or } P_{64} \text{ or } 64^{\text{th}} \text{ percentile} \quad \leftarrow 0.5 \text{ mark}$$

Question 10 Restricted Response **Statistics** (1.5 Marks)

♦ Sample 1

In a school division 1 250 students wrote an exam. Bill and 119 other students earned 100 out of a possible 125 points on the exam. There were 740 students who scored lower than Bill. Calculate Bill's percentile ranking.

$$P = \left(\frac{B + 0.5E}{n}\right) \times 100$$

$$P = \left(\frac{100 + 0.5100}{125}\right) \times 100$$

$$P = 80^{th}$$

Mark: 0 out of 1.5
Rationale: – Incorrect solution

♦ Sample 2

In a school division 1 250 students wrote an exam. Bill and 119 other students earned 100 out of a possible 125 points on the exam. There were 740 students who scored lower than Bill. Calculate Bill's percentile ranking.

$$P = \left(\frac{B + 0.5E}{T}\right) \times 100$$

$$P = \left(\frac{740 + (0.5)(119)}{1250}\right) = 59.5 = 740 \text{ = his percentile rank}$$

Mark: 0.5 out of 1.5

Rationale: – Two correct substitutions (0.5 mark)
– Incorrect answer

♦ Sample 3

In a school division 1 250 students wrote an exam. Bill and 119 other students earned 100 out of a possible 125 points on the exam. There were 740 students who scored lower than Bill. Calculate Bill's percentile ranking.

$$P = \left(\frac{B + 0.5E}{n}\right) \times 100$$

$$P = \left(\frac{740 + 0.5(120)}{1250}\right) \times 100 = 64\%$$

Mark: 1 out of 1.5

Rationale: – Three correct substitutions (1 mark)
– Incorrect answer (percentile rank stated as a percent)

Question 10 Restricted Response **Statistics** (1.5 Marks)

- **Sample 4**

In a school division 1 250 students wrote an exam. Bill and 119 other students earned 100 out of a possible 125 points on the exam. There were 740 students who scored lower than Bill. Calculate Bill's percentile ranking.

$$P = \left(\frac{B + 0.5E}{n}\right) \times 100 = \left(\frac{740 + 0.5 \times 120}{1250}\right) \times 100$$

64 percentile is bills ranking

Mark: 1.5 out of 1.5
Rationale: – Correct solution

Question 11 Open Response **Statistics** (1 Mark)

- **Test Item and Marking Guide** **V-F3**

Your friend Maryse scored 82% on her entrance exam to the Faculty of Law. Students are accepted into the faculty if they score above the 75th percentile on the exam. If Maryse asks if you think she will be accepted, how would you answer her?

Sample Answers: *I do not have enough information to determine whether Maryse will be accepted or not. Her score of 82% is a percentage and is not her percentile rank on the entrance exam.*

OR

Her acceptance will depend on whether or not her 82% places her into the 75th percentile rank or higher. It will depend on the scores of the other students who apply.

Question 11 Open Response **Statistics** (1 Mark)

♦ Sample 1

Your friend Maryse scored 82% on her entrance exam to the Faculty of Law. Students are accepted into the faculty if they score above the 75th percentile on the exam. If Maryse asks if you think she will be accepted, how would you answer her?

I would say that I have a fair chance of being accepted because of 75th percentile ranking on the exam.

Mark: 0 out of 1
Rationale: – No justification

Question 11 Open Response **Statistics** (1 Mark)

♦ Sample 2

Your friend Maryse scored 82% on her entrance exam to the Faculty of Law. Students are accepted into the faculty if they score above the 75th percentile on the exam. If Maryse asks if you think she will be accepted, how would you answer her?

If she was one of the highest scores so if lots of people scored above the 75th percentile on the exam she be accepted.

Mark: 0 out of 1
Rationale: – Not clear in explanation

Question 11 Open Response **Statistics** (1 Mark)

♦ Sample 3

Your friend Maryse scored 82% on her entrance exam to the Faculty of Law. Students are accepted into the faculty if they score above the 75th percentile on the exam. If Maryse asks if you think she will be accepted, how would you answer her?

MARYSE YOU RECEIVED A GOOD MARK BUT IT DEPENDS ON HOW HARD THE EXAM WAS AND HOW MANY PEOPLE SCORED HIGHER THAN YOU. BECAUSE YOU MIGHT HAVE GOTTEN A 82% BUT THE REST OF THE CLASS MAY HAVE ALL GOTTEN 97%S WHICH WOULD MAKE YOU TO BE IN A LOWER PERCENTILE.

Mark: 1 out of 1
Rationale: – Correct justification

Question 11 Open Response **Statistics** (1 Mark)

♦ Sample 4

Your friend Maryse scored 82% on her entrance exam to the Faculty of Law. Students are accepted into the faculty if they score above the 75th percentile on the exam. If Maryse asks if you think she will be accepted, how would you answer her?

I would say that it is likely that she be accepted, but I am aware that 82% does not mean she scored above the 75th percentile.

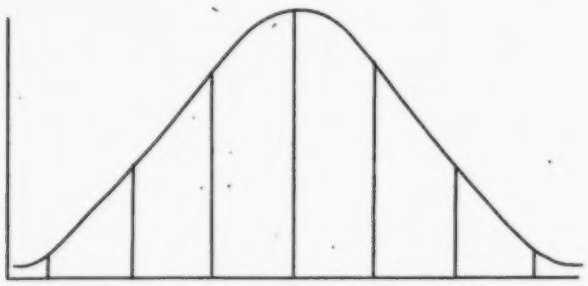
Mark: 1 out of 1
Rationale: – Correct justification

Question 12 Restricted Response **Statistics** (2 Marks)

♦ Test Item and Marking Guide **V-F5**

The tread life of a tire has a normal distribution. Its mean tread life is 120 000 km with a standard deviation of 5 000 km.

A) Label the normal distribution curve. (0.5 mark)



Answer: *105* *110* *115* *120* *125* *130* *135* *(in thousands)*

B) Find the percent of tires that have a tread life of less than 115 000 km. (0.5 mark)

Answer: $14\% + 2\% = \underbrace{16\%}_{0.5\ mark}$

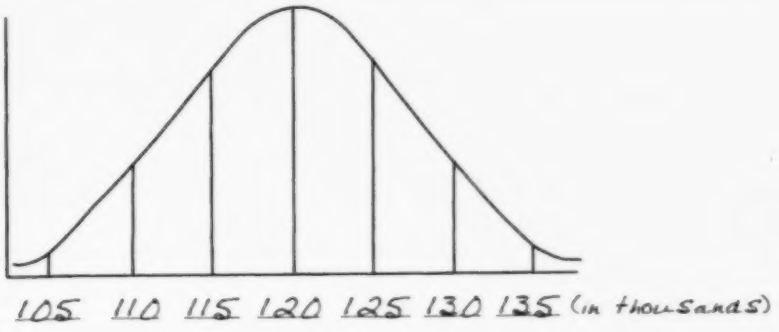
C) Determine how many tires would have a tread life of more than 130 000 km if 30 000 tires are manufactured. (1 mark)

Answer: $\underbrace{2\%}_{0.5\ mark} \times 30\,000 = \underbrace{600}_{0.5\ mark}$

♦ Sample 1

The tread life of a tire has a normal distribution. Its mean tread life is 120 000 km with a standard deviation of 5 000 km.

A) Label the normal distribution curve. (0.5 mark)



B) Find the percent of tires that have a tread life of less than 115 000 km. (0.5 mark)

16% of tires have a life of less than 115 000 km

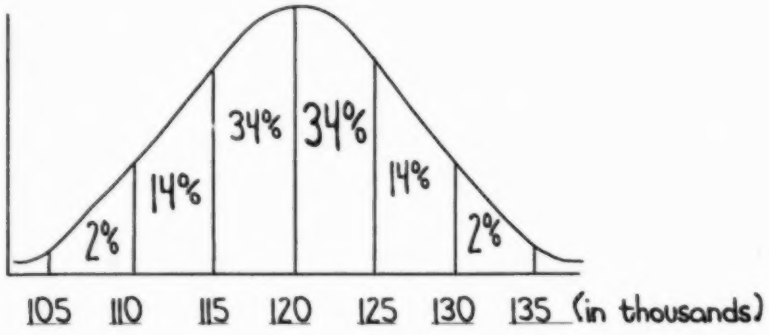
C) Determine how many tires would have a tread life of more than 130 000 km if 30 000 tires are manufactured. (1 mark)

Mark: 1 out of 2
Rationale: – Correct labelling in Part A (0.5 mark)
– Correct answer in Part B (0.5 mark)

♦ Sample 2

The tread life of a tire has a normal distribution. Its mean tread life is 120 000 km with a standard deviation of 5 000 km.

A) Label the normal distribution curve. (0.5 mark)



B) Find the percent of tires that have a tread life of less than 115 000 km. (0.5 mark)

0.16 x 30 000 = 4 800

C) Determine how many tires would have a tread life of more than 130 000 km if 30 000 tires are manufactured. (1 mark)

0.34 x 30 000 = 10 200

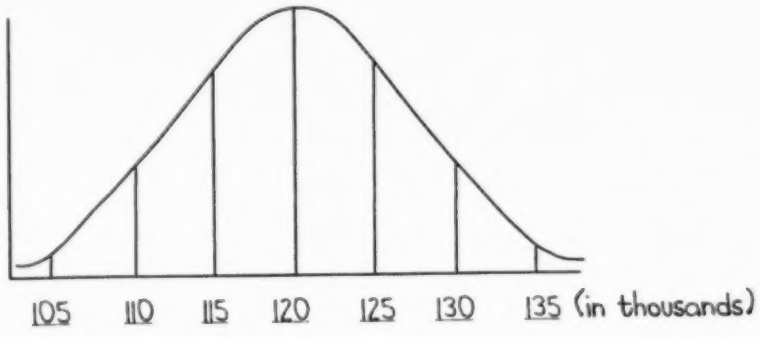
Mark: 1.5 out of 2

Rationale:
- Correct labelling in Part A (0.5 mark)
- Correct percentage in Part B (0.5 mark)
- Correct answer with follow-through error in Part C (0.5 mark)

♦ Sample 3

The tread life of a tire has a normal distribution. Its mean tread life is 120 000 km with a standard deviation of 5 000 km.

A) Label the normal distribution curve. (0.5 mark)



B) Find the percent of tires that have a tread life of less than 115 000 km. (0.5 mark)

14 + 2% = 16% less than 115 000

C) Determine how many tires would have a tread life of more than 130 000 km if 30 000 tires are manufactured. (1 mark)

2% more than 130 000 km

Mark: 1.5 out of 2

Rationale:
- Correct labelling in Part A (0.5 mark)
- Correct percentage in Part B (0.5 mark)
- Correct percentage in Part C (0.5 mark)

♦ Test Item and Marking Guide V-F4

On a recent test, Mary's class had a mean of 68% and a standard deviation of 5%. Bob's class had a mean of 72% but a standard deviation of 12%. Both classes have the same number of students. Determine which class was more likely to have a higher failure rate. Support your answer.

Sample Answers: Bob's class probably has more failures. ← *0.5 mark*

Mary's class all pass:		*Bob's class:*	
68	$\bar{x}$	*72*	$\bar{x}$
68 - 5 = 63	$\bar{x}$ *- 1 sd*	*72 - 12 = 60*	$\bar{x}$ *- 1 sd*
63 - 5 = 58	$\bar{x}$ *- 2 sd*	*60 - 12 = 48*	$\bar{x}$ *- 2 sd*
58 - 5 = 53	$\bar{x}$ *- 3 sd*	*48 - 12 = 36*	$\bar{x}$ *- 3 sd*

OR

Bob's class is likely to have a higher failure rate. It has a much higher standard deviation. Two standard deviations below the mean puts you in a failing position.

OR

Mary's class is likely to have a lower failure rate. It has a much lower standard deviation. This means her class's scores are much closer to the mean (closely clustered).

0.5 mark for correct reference to the mean

AND

0.5 mark for correct reference to standard deviation

Question 13 Restricted Response with Explanation **Statistics** (1.5 Marks)

♦ Sample 1

On a recent test, Mary's class had a mean of 68% and a standard deviation of 5%. Bob's class had a mean of 72% but a standard deviation of 12%. Both classes have the same number of students. Determine which class was more likely to have a higher failure rate. Support your answer.

Mary's class would likely have more failures because the class average is lower.

Mark: 0 out of 1.5
Rationale: – Wrong class
– Incorrect explanation

Question 13 Restricted Response with Explanation **Statistics** (1.5 Marks)

♦ Sample 2

On a recent test, Mary's class had a mean of 68% and a standard deviation of 5%. Bob's class had a mean of 72% but a standard deviation of 12%. Both classes have the same number of students. Determine which class was more likely to have a higher failure rate. Support your answer.

Bob's class would likely have more failures because the standard deviation is much greater.

Mark: 1 out of 1.5
Rationale: – Correct class (0.5 mark)
– Correct reference to standard deviation (0.5 mark)

Question 14 Restricted Response **Statistics** (1 Mark)

♦ Test Item and Marking Guide **V-F6**

Two data sets share a correlation coefficient of 0.98. Identify the type and strength of the correlation.

Answer: The correlation is $\underbrace{\textit{strong}}_{0.5\ \textit{mark}}$ $\underbrace{\textit{positive}}_{0.5\ \textit{mark}}$

Question 14 Restricted Response **Statistics** (1 Mark)

- **Sample 1**

Two data sets share a correlation coefficient of 0.98. Identify the type and strength of the correlation.

direct variation

Mark: 0 out of 1
Rationale: – Incorrect answer

Question 14 Restricted Response **Statistics** (1 Mark)

- **Sample 2**

Two data sets share a correlation coefficient of 0.98. Identify the type and strength of the correlation.

As the temperature increases the number of ice cream cones sold increases.

Mark: 0 out of 1
Rationale: – No identification of strength or type

Question 14 Restricted Response **Statistics** (1 Mark)

- **Sample 3**

Two data sets share a correlation coefficient of 0.98. Identify the type and strength of the correlation.

strong correlation

Mark: 0.5 out of 1
Rationale: – Correct strength (0.5 mark)

Variation and Formulas

Question 15 Restricted Response **Variation and Formulas** (1 Mark)

♦ Test Item and Marking Guide

VI-F3

Manuel kicks a pebble into the water from the highest cliff at a resort. The pebble is in the air for 3.2 seconds. Determine the distance the pebble falls using the formula $d = 4.9\ t^2$ where d = distance fallen in metres and t = time spent falling in seconds.

Answer: $d = 4.9 \times 3.2^2$ ← *0.5 mark for correct substitution*
$= 50.2$ *metres* ← *0.5 mark*

Question 15 Restricted Response **Variation and Formulas** (1 Mark)

♦ Sample 1

Manuel kicks a pebble into the water from the highest cliff at a resort. The pebble is in the air for 3.2 seconds. Determine the distance the pebble falls using the formula $d = 4.9\ t^2$ where d = distance fallen in metres and t = time spent falling in seconds.

$d = 4.9t$
$d = 4.9 \times 3.2$
$d = 15.68\ m$

Mark: 0.5 out of 1
Rationale: – Correct substitution (0.5 mark)
– Incorrect use of formula given (no mark awarded for final answer)

Question 15 Restricted Response **Variation and Formulas** (1 Mark)

♦ Sample 2

Manuel kicks a pebble into the water from the highest cliff at a resort. The pebble is in the air for 3.2 seconds. Determine the distance the pebble falls using the formula $d = 4.9\ t^2$ where d = distance fallen in metres and t = time spent falling in seconds.

$d = 4.9 \times 3.2^2$

$d = 245.86\ m$

Mark: 0.5 out of 1
Rationale: – Correct substitution (0.5 mark)

Question 16 Restricted Response **Variation and Formulas** (1 Mark)

♦ Test Item and Marking Guide **VI-F4**

Convert 8° Fahrenheit (F) to the equivalent temperature in Celsius (C).

Answer: $C = \frac{5}{9}(F - 32)$

$= \frac{5}{9}(8 - 32)$ ← *0.5 mark for correct substitution*

$= -13.3°C$ ← *0.5 mark*

Question 16 Restricted Response **Variation and Formulas** (1 Mark)

♦ Sample 1

Convert 8° Fahrenheit (F) to the equivalent temperature in Celsius (C).

$$8 = \frac{9}{5}C + 32$$

$$40 = \frac{9}{5}$$

$$C = 23$$

Mark: 0.5 out of 1
Rationale: – Correct substitution (0.5 mark)

Question 16 Restricted Response Variation and Formulas (1 Mark)

- **Sample 2**

Convert 8° Fahrenheit (F) to the equivalent temperature in Celsius (C).

$$\frac{5}{9}(8^\circ - 32) = 18^\circ C$$

Mark: 0.5 out of 1
Rationale: - Correct substitution (0.5 mark)
- Incorrect answer

Question 16 Restricted Response Variation and Formulas (1 Mark)

- **Sample 3**

Convert 8° Fahrenheit (F) to the equivalent temperature in Celsius (C).

$$F = \frac{9}{5}C + 32$$

$$8 = \frac{9}{5}C + 32$$

$$-24 = \frac{9}{5}C$$

$$-120 = 9C$$

$$-13.3 = C$$

Mark: 1 out of 1
Rationale: - Correct solution (2 × 0.5 mark)

♦ Test Item and Marking Guide **VI-F1**

Time varies inversely with speed. If you travel 120 km/h, it takes 3.5 hours to reach your destination.

A) Calculate the constant of variation. (1 mark)

Answer: $3.5 = \frac{k}{120}$ *OR* $(120)(3.5) = k$ ← *0.5 mark for correct substitution*

$k = 420\ km$ ← *0.5 mark*

B) Complete the table below which shows the time it takes to reach your destination at different speeds. (2 × 0.5 mark)

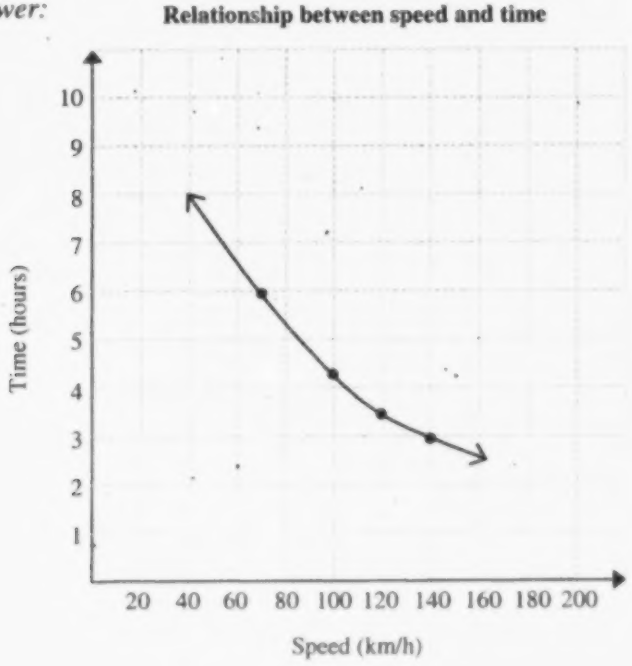
Answer:

speed (km/h)	140	120	**100**	70
time (hours)	**3**	3.5	4.2	6

2 × 0.5 mark

C) Draw a graph showing speed versus time. Use the information from the table above. (1 mark)

Answer:



← *0.5 mark for plotted points*
← *0.5 mark for axis scales*

♦ Sample 1

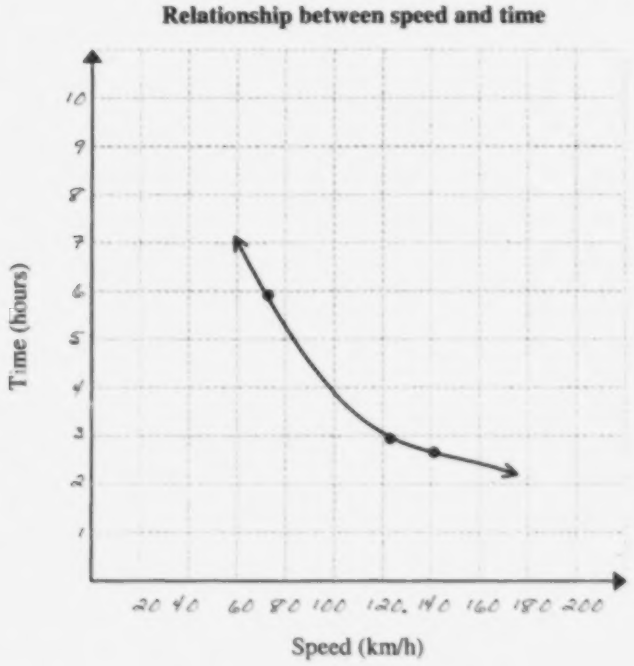
Time varies inversely with speed. If you travel 120 km/h, it takes 3.5 hours to reach your destination.

A) Calculate the constant of variation. (1 mark)

B) Complete the table below which shows the time it takes to reach your destination at different speeds. (2 × 0.5 mark)

speed (km/h)	140	120		70
time (hours)	3	3.5	4.2	6

C) Draw a graph showing speed versus time. Use the information from the table above. (1 mark)



Mark: 1 out of 3

Rationale: – One correct value in Part B (0.5 mark)
– Correct axis scales in Part C (0.5 mark)
– Incorrectly points plotted in Part C

♦ Sample 2

Time varies inversely with speed. If you travel 120 km/h, it takes 3.5 hours to reach your destination.

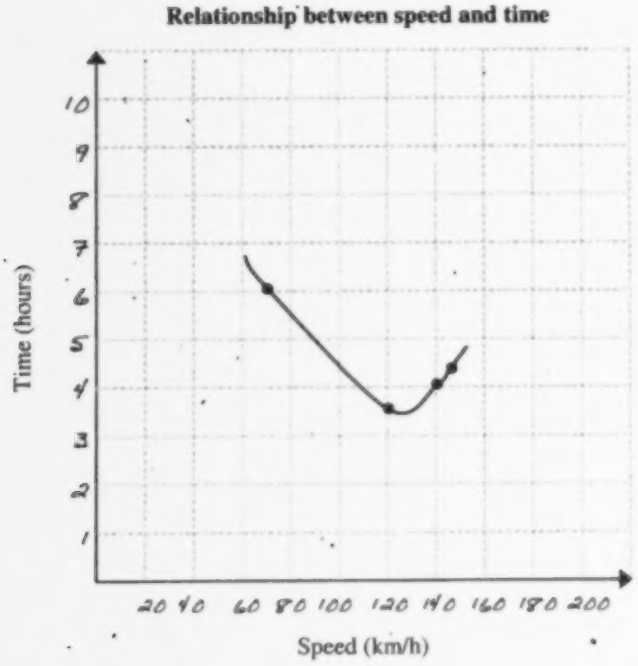
A) Calculate the constant of variation. (1 mark)

$T = ks \quad \frac{3.5}{120} = k \quad k = 0.029$

B) Complete the table below which shows the time it takes to reach your destination at different speeds. (2 × 0.5 mark)

speed (km/h)	140	120	145	70
time (hours)	4	3.5	4.2	6

C) Draw a graph showing speed versus time. Use the information from the table above. (1 mark)



Mark: 2.5 out of 3

Rationale: – Correct substitution in Part A (follow-through error of direct variation) (0.5 mark)
– Correct solutions in Parts B and C (follow-through errors from Parts A and B) (4 × 0.5 mark)

♦ Sample 3

Time varies inversely with speed. If you travel 120 km/h, it takes 3.5 hours to reach your destination.

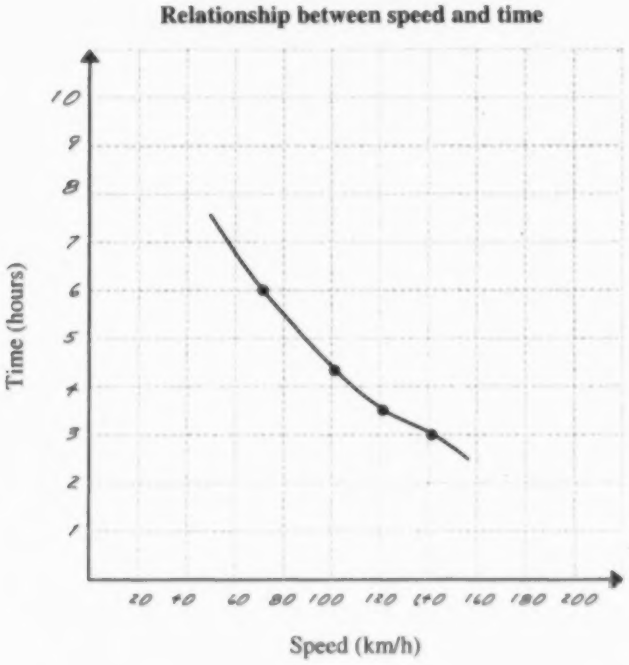
A) Calculate the constant of variation. (1 mark)

$T = \frac{k}{s}$ $k = Ts$ $k = 420$

B) Complete the table below which shows the time it takes to reach your destination at different speeds. (2 × 0.5 mark)

speed (km/h)	140	120	100	70
time (hours)	3	3.5	4.2	6

C) Draw a graph showing speed versus time. Use the information from the table above. (1 mark)

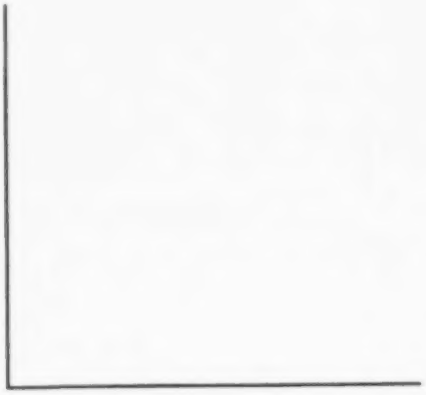


Mark: 3 out of 3

Rationale: – Correct final answer in Part A (implied substitution) (2 × 0.5 mark)
– Correct solutions in Parts B and C (4 × 0.5 mark)

♦ Test Item and Marking Guide VI-F1

Eric earns $50.00 per day plus $2.00 for every CD that he sells. Sketch the partial variation of earnings versus sales.



Answer:

0.5 mark for starting at fixed cost
0.5 mark for straight positive slope

Question 18 Open Response Variation and Formulas (1 Mark)

- **Sample 1**

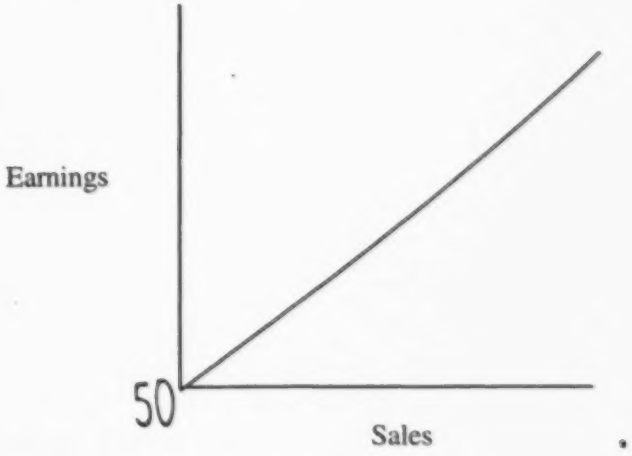
Eric earns $50.00 per day plus $2.00 for every CD that he sells. Sketch the partial variation of earnings versus sales.

Mark: 0.5 out of 1
Rationale: – Correct indication of fixed cost (0.5 mark)

Question 18 Open Response Variation and Formulas (1 Mark)

- **Sample 2**

Eric earns $50.00 per day plus $2.00 for every CD that he sells. Sketch the partial variation of earnings versus sales.



Mark: 1 out of 1
Rationale: – Correct solution (2 × 0.5 mark)

Question 19 Extended Restricted Response **Variation and Formulas** (1.5 Marks)

♦ Test Item and Marking Guide **VI-F4**

Determine the diameter of a sphere that has a surface area of 1 250 cm^2.

Answer: $SA = 4\pi r^2$

$1\,250 = 4\pi r^2$ *(0.5 mark for correct substitution)*

using π		*using 3.14*
$r^2 = 99.47$		$r^2 = 99.52$
$r = 9.97$ *(0.5 mark)*		$r = 9.98$ *(0.5 mark)*
	OR	
$d = 2r$		$d = 2r$
$d = 2\,(9.97)$		$d = 2\,(9.98)$
$d = 19.94$ *cm (0.5 mark)*		$d = 19.96$ *cm (0.5 mark)*

Question 19 Extended Restricted Response **Variation and Formulas** (1.5 Marks)

♦ Sample 1

Determine the diameter of a sphere that has a surface area of 1 250 cm^2.

$SA = 4\pi r^2$

$r = 10$ cm

Mark: 0.5 out of 1.5
Rationale: – Correct radius (0.5 mark)

Question 19 Extended Restricted Response **Variation and Formulas** (1.5 Marks)

- **Sample 2**

Determine the diameter of a sphere that has a surface area of 1 250 cm^2.

$1250 = 4\pi r^2$

$35.4 = 4\pi r$

$2.8 = r$

$5.6 = d$

Mark: 1 out of 1.5
Rationale: – Correct substitution (0.5 mark)
– Correct diameter solution (follow-through error) (0.5 mark)

Question 19 Extended Restricted Response **Variation and Formulas** (1.5 Marks)

- **Sample 3**

Determine the diameter of a sphere that has a surface area of 1 250 cm^2.

$d = 20$ cm
because $r = 10$
because $4(\pi)(10)^2$
$= 1256$
which is really close.

Mark: 1.5 out of 1.5
Rationale: – Alternate method (guess and check) (3 × 0.5 mark)

Investments

Question 20 Open Response **Investments** (2 Marks)

♦ Test Item and Marking Guide VI-D3

Jasmine, who is 18 years old, has $1 000 to invest.

A) State one reason why she might prefer to purchase a term deposit or a G.I.C. instead of investing money in a chequing account. (1 mark)

Sample Answers: - *earns more interest* ← *1 mark*
- *locked in means forced savings over time*

B) State a reason why she might invest the money in a chequing account. (1 mark)

Sample Answers: - *higher liquidity* ← *1 mark*
- *easy access to funds*

Question 20 Open Response **Investments** (2 Marks)

♦ Sample 1

Jasmine, who is 18 years old, has $1 000 to invest.

A) State one reason why she might prefer to purchase a term deposit or a G.I.C. instead of investing money in a chequing account. (1 mark)

She can make interest on her money (make more money for herself)

B) State a reason why she might invest the money in a chequing account. (1 mark)

Because there is no risk

Mark: 1 out of 2
Rationale: – Correct reason in Part A (1 mark)

Question 20 Open Response **Investments** (2 Marks)

- **Sample 2**

Jasmine, who is 18 years old, has $1 000 to invest.

A) State one reason why she might prefer to purchase a term deposit or a G.I.C. instead of investing money in a chequing account. (1 mark)

In a G.I.C. you can earn money faster or gain more money through interest.

B) State a reason why she might invest the money in a chequing account. (1 mark)

In a G.I.C. you might loss money because the rate of interest is not as constant like a chequing account.

Mark: 1 out of 2
Rationale: – Correct reason in Part A (1 mark)

Question 20 Open Response **Investments** (2 Marks)

- **Sample 3**

Jasmine, who is 18 years old, has $1 000 to invest.

A) State one reason why she might prefer to purchase a term deposit or a G.I.C. instead of investing money in a chequing account. (1 mark)

Because if she deposits a term or G.I.C. She could make profit out of it because she is borrowing money to the bank.

B) State a reason why she might invest the money in a chequing account. (1 mark)

She might invest the money in a chequing account for emergencies, in case she wants to buy something or maybe travelling. It's her money that will be there when she needs it.

Mark: 1 out of 2
Rationale: – Correct reason in Part B (1 mark)

Question 21 Open Response **Investments** (3 Marks)

♦ Test Item and Marking Guide **VI-D3**

Fred and Barney are comparing their investment portfolios. Fred's portfolio is composed of higher risk items. In contrast, Barney's portfolio items are lower risk.

A) List 2 potential investment items in each portfolio. (2 marks)

Sample Answers:

Fred	Barney
shares	*GIC*
real estate	*money market fund*

←0.5 mark per item (maximum 2 marks)

B) Describe two possible reasons why Fred has chosen a higher risk portfolio. (1 mark)

Sample Answers:
- *Higher potential return*
- *Fred is a risk taker*
- *Fred could be younger than Barney and has more time to regain potential losses*

0.5 mark per reason (maximum 1 mark)

Question 21 Open Response **Investments** (3 Marks)

♦ Sample 1

Fred and Barney are comparing their investment portfolios. Fred's portfolio is composed of higher risk items. In contrast, Barney's portfolio items are lower risk.

A) List 2 potential investment items in each portfolio. (2 marks)

Fred	Barney
more Shares	more money
less money	less Shares

B) Describe two possible reasons why Fred has chosen a higher risk portfolio. (1 mark)

- possibly a higher profit, more money
- possibly a higher number in Shares.

Mark: 0.5 out of 3

Rationale: – No clear decision made about "shares" in Part A
– One correct reason ("possibly a higher profit, more money") in Part B (0.5 mark)

Question 21 Open Response **Investments** (3 Marks)

♦ Sample 2

Fred and Barney are comparing their investment portfolios. Fred's portfolio is composed of higher risk items. In contrast, Barney's portfolio items are lower risk.

A) List 2 potential investment items in each portfolio. (2 marks)

Fred	Barney
stocks	chequeings account
GIC	RSP

B) Describe two possible reasons why Fred has chosen a higher risk portfolio. (1 mark)

so he can make money on his investment

Mark: 1 out of 3

Rationale: – Two correct items (stocks, chequing account) in Part A (2 × 0.5 mark)

Question 21 Open Response **Investments** (3 Marks)

♦ Sample 3

Fred and Barney are comparing their investment portfolios. Fred's portfolio is composed of higher risk items. In contrast, Barney's portfolio items are lower risk.

A) List 2 potential investment items in each portfolio. (2 marks)

Fred	Barney
stock	savings account
chequing account	R.R.S.P.

B) Describe two possible reasons why Fred has chosen a higher risk portfolio. (1 mark)

Because it is easy access and you have a chance to make more money.

Mark: 1.5 out of 3
Rationale: – Two correct items (stocks, savings account) in Part A (2 × 0.5 mark)
– One correct reason ("chance to make more money") in Part B (0.5 mark)

Question 21 Open Response **Investments** (3 Marks)

♦ Sample 4

Fred and Barney are comparing their investment portfolios. Fred's portfolio is composed of higher risk items. In contrast, Barney's portfolio items are lower risk.

A) List 2 potential investment items in each portfolio. (2 marks)

Fred	Barney
STOCKS	GIC
BOND	PERSONAL OWNERSHIP (PAINTINGS)

B) Describe two possible reasons why Fred has chosen a higher risk portfolio. (1 mark)

HE BELIEVES IN CHANCES AND LUCK AND MAYBE INVOLVED IN A PARTICULAR ACTIVITY THAT AQUIRES A LOT OF MONEY GIVEN BACK TO HIM DUE TO INJURY

Mark: 2 out of 3
Rationale: – Three correct items (stocks, bond, G.I.C.) in Part A (3 × 0.5 mark)
– One correct reason in Part B (risk taking) (0.5 mark)

Question 22 Extended Restricted Response **Investments** (1.5 Marks)

♦ Test Item and Marking Guide **VI-D5**

Sean owns 400 shares of Winpower Corporation. He sells them for $12.50 each. He must pay a commission of 3% of the total transaction. How much money does Sean receive after the transaction?

Answer: $400 \times 12.50 = \$5\,000.00$ ← *0.5 mark for cost of shares*

$\$5\,000.00 \times 0.03 = \$150.00$ ← *0.5 mark for cost of commission*

$\$5\,000.00 - \$150 = \$4\,850.00$ ← *0.5 mark for net redemption*

Question 22 Extended Restricted Response **Investments** (1.5 Marks)

♦ Sample 1

Sean owns 400 shares of Winpower Corporation. He sells them for $12.50 each. He must pay a commission of 3% of the total transaction. How much money does Sean receive after the transaction?

400 x $12.50 = $5 000

$5 000 x 3 = $15 000

$15 000 − $5 000 = $10 000

Mark: 0.5 out of 1.5

Rationale:
- Correct calculation of shares (0.5 mark)
- Incorrect cost of commission
- Incorrect calculation of net redemption (net redemption does not equal commission minus cost of shares)

Question 22 Extended Restricted Response **Investments** (1.5 Marks)

- **Sample 2**

Sean owns 400 shares of Winpower Corporation. He sells them for $12.50 each. He must pay a commission of 3% of the total transaction. How much money does Sean receive after the transaction?

12.50

× 3%

0.375/SHARE

400 × 0.375 = 150 COST

Mark: 0.5 out of 1.5
Rationale: – Correct calculation of commission (0.5 mark)

Question 22 Extended Restricted Response **Investments** (1.5 Marks)

- **Sample 3**

Sean owns 400 shares of Winpower Corporation. He sells them for $12.50 each. He must pay a commission of 3% of the total transaction. How much money does Sean receive after the transaction?

400 x 12.5 = $5 000

$5 000 x 0.03 = 150

150 + $5 000 = $5 150

Mark: 1 out of 1.5
Rationale: – Correct calculation of share cost (0.5 mark)
– Correct calculation of commission (0.5 mark)

Question 23 Open Response **Investments** (1 Mark)

♦ Test Item and Marking Guide **VI-D7**

Daniel has applied for a loan. Daniel's Debt Equity Ratio has been calculated to be 40%. Will Daniel be considered for this loan? Why or why not?

Sample answers:
- *Daniel will be considered if his Debt Equity Ratio stays below 50%*
- *Daniel will not be considered if the loan would put his debt equity ratio over 50%*

Question 23 Open Response **Investments** (1 Mark)

♦ Sample 1

Daniel has applied for a loan. Daniel's Debt Equity Ratio has been calculated to be 40%. Will Daniel be considered for this loan? Why or why not?

If Daniel buys something like a car its different than if he goes on a trip with the money. So it depends on what the money is used for.

Mark: 0 out of 1
Rationale: – Incomplete reason

Question 23 Open Response **Investments** (1 Mark)

- **Sample 2**

Daniel has applied for a loan. Daniel's Debt Equity Ratio has been calculated to be 40%. Will Daniel be considered for this loan? Why or why not?

Yes, Daniel can afford 10% more in debt before the bank turns him down.

Mark: 1 out of 1
Rationale: – Correct justification (1 mark)

Question 23 Open Response **Investments** (1 Mark)

- **Sample 3**

Daniel has applied for a loan. Daniel's Debt Equity Ratio has been calculated to be 40%. Will Daniel be considered for this loan? Why or why not?

If it's a small loan, he might get it. But a big loan might put him over 50% so maybe not.

Mark: 1 out of 1
Rationale: – Correct justification (1 mark)

Design and Measurement

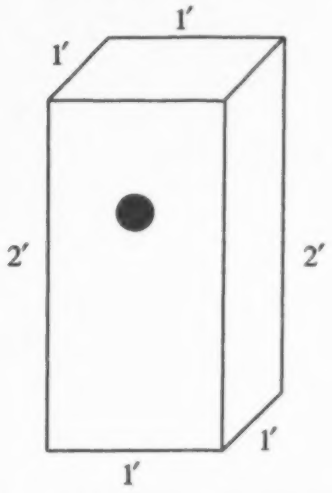
Question 24 Open Response **Design and Measurement** (2 Marks)

♦ Test Item and Marking Guide V-D5

A) Calculate how many duck nesting boxes an environmental group can build using a sheet of 4' × 8' plywood. (1.5 marks)
Each box will have:

Nesting Box	Roof	Floor	Sides
	1' × 1'	1' × 1'	2' × 1'
(one side will have a circle cut out of it for an entrance)			

Diagram of Nesting Box



Sample Answer 1 Algebraic Method:

$(4)(2 \times 1) = 8\ ft^2$

$(2)(1 \times 1) = 2\ ft^2$

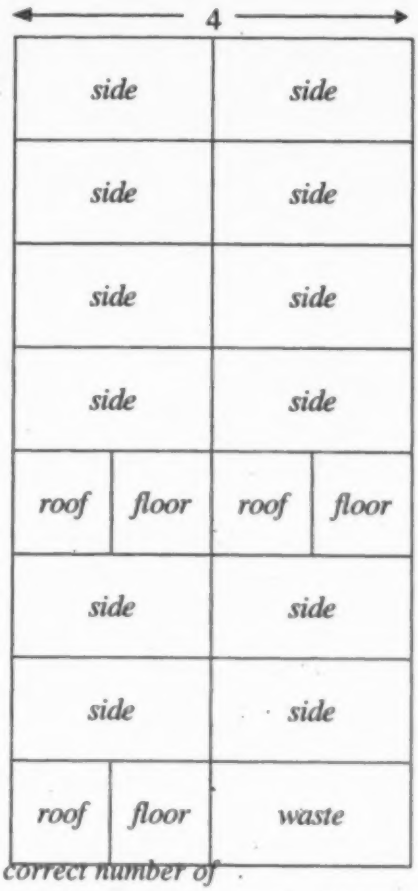
$10\ ft^2$

6 pieces — *0.5 mark for number of pieces*

0.5 mark for total area

$\frac{32\ ft^2}{10\ ft^2} = 3.2 = 3$ *boxes* ← *0.5 mark*

Sample Answer 2
Diagram Method:



– *correct number of constituent parts* ← *0.5 mark*
– *correct measurement of labels* ← *0.5 mark*
– *correct solution* ← *0.5 mark*

B) Calculate how much each box will cost if the plywood costs $25 per sheet (including taxes). (0.5 mark)

Answer: $\frac{\$25}{3} = \$8.33$ *per box* ← *0.5 mark*

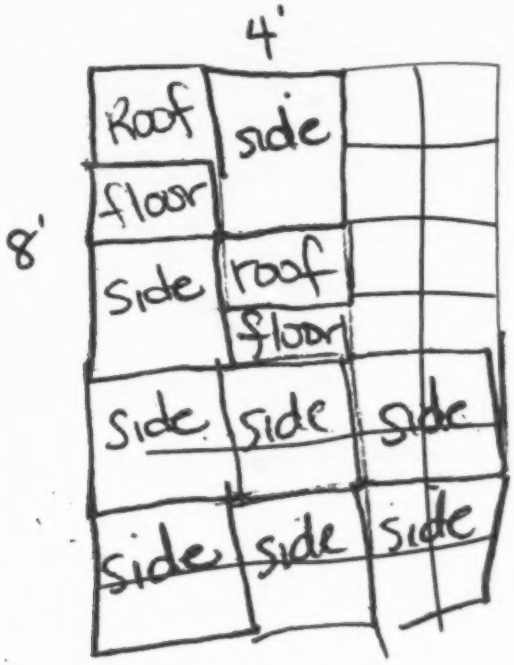
♦ Sample 1

A) Calculate how many duck nesting boxes an environmental group can build using a sheet of 4' × 8' plywood. (1.5 marks)
Each box will have:

4 sides – 2' x 1'

roof – 1' x 1'
floor – 1' x 1'

You could make 2 birdhouses out of a 4' 8' board leaving you with 2' 4' to spare.



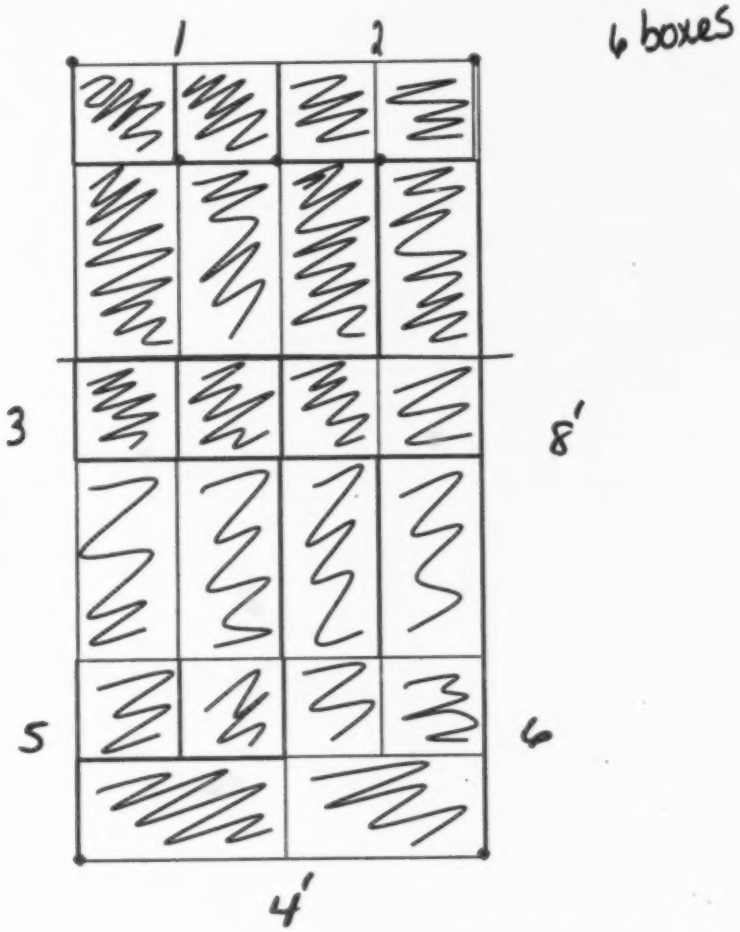
B) Calculate how much each box will cost if the plywood costs $25 per sheet (including taxes). (0.5 mark)

It cost's $0.78 for a 1' x 1' piece of board.
You would use 24 1' x 1's so it would cost $18.72

Mark: 1 out of 2
Rationale: – Correct number of parts in Part A (0.5 mark)
– Incorrect measurement in Part A
– Correct number of boxes with follow-through error in Part A (0.5 mark)
– Incorrect solution in Part B

♦ Sample 2

A) Calculate how many duck nesting boxes an environmental group can build using a sheet of 4' × 8' plywood. (1.5 marks)
Each box will have:



B) Calculate how much each box will cost if the plywood costs $25 per sheet (including taxes). (0.5 mark)

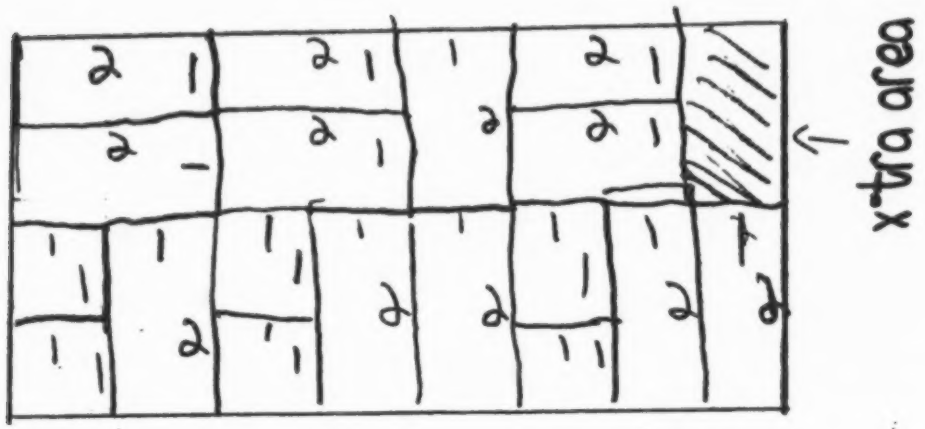
6 boxes

$4.16 each box

Mark: 1 out of 2
Rationale: – Correct sizes in Part A (0.5 mark)
– Incorrect layout in Part A
– Incorrect number of boxes in Part A
– Correct cost per box in Part B with follow-through error (0.5 mark)

- **Sample 3**

A) Calculate how many duck nesting boxes an environmental group can build using a sheet of 4' × 8' plywood. (1.5 marks)
Each box will have:



They can build 3

B) Calculate how much each box will cost if the plywood costs $25 per sheet (including taxes). (0.5 mark)

25 x 1.14 = 28.50 ÷ 3 (3 per sheet)

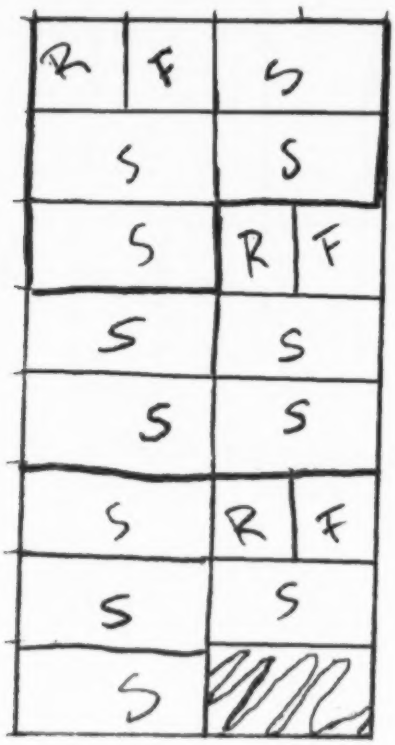
$9.50 per bird feeder

Mark: 1.5 out of 2
Rationale: – Correct answer in Part A (3 × 0.5 mark)
– Incorrect solution in Part B (taxes already included)

- **Sample 4**

A) Calculate how many duck nesting boxes an environmental group can build using a sheet of 4' × 8' plywood. (1.5 marks)
Each box will have:

1 cm = 1 ft



3 boxes

B) Calculate how much each box will cost if the plywood costs $25 per sheet (including taxes). (0.5 mark)

$25 per sheet ÷ 3 per sheet

25 ÷ = $8.33

Mark: 2 out of 2
Rationale: – Correct solution in Part A (3 × 0.5 mark)
– Correct solution in Part B (0.5 mark)

Appendix A

Irregularities in Standards Tests

A GUIDE FOR LOCAL MARKING

The *Administration Manual for Supervising Teachers* and the *Policies and Procedures for Standards Tests* are distributed to teachers and administrators to ensure consistency in the administration of standards tests. These documents deal with the issues of test material security and the department's policy regarding adaptations and exemptions.

During the marking of standards tests, markers have occasionally encountered test booklets in which there have been irregularities. The following list provides examples of such irregularities, and is not intended to be exhaustive:

- Completely different penmanship in the same booklet
- Incoherent work with correct answer(s)
- Notes from a teacher indicating how they have assisted students during the test administration
- Student offering that they received teacher assistance for a question
- Student submitting work on unauthorized paper
- Evidence of plagiarism or cheating

If a student's mark on the test is 0% because he/she left the whole test booklet blank or answered with a combination of non-responses and inappropriate responses, please complete an *Irregular Test Paper Report* to confirm that the result is accurate (i.e., the student was not, in fact, absent or exempted).

Please note that student comments or responses indicating that the student may be at personal risk of being harmed or of harming others are personal safety issues. This type of student response requires an immediate and appropriate follow-up action at the school level. In this case, please ensure the department is made aware that a follow-up has taken place by completing an *Irregular Test Paper Report*.

Except in the case of cheating or plagiarism where the result is a standards test mark of 0%, it is the responsibility of the divisions/schools to determine how they will proceed with irregularities. Once an irregularity has been confirmed, the marker prepares an *Irregular Test Paper Report* documenting the situation, the people contacted, and the follow-up. The original copy of this report is to be retained by the local jurisdiction and a copy is to be sent to the Instruction, Curriculum and Assessment Branch along with all other test materials.

Irregular Test Paper Report

Test: _____

Date marked: _____

Booklet ID No.: _____

Problem noted: _____

_____

_____

_____

_____

_____

Question(s) affected: _____

_____

_____

Action taken or rationale for assigning marks: _____

_____

_____

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Follow-up: _____

_____

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Decision: _____

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_____

Marker's Signature: _____

Principal's Signature: _____

For Department Use Only—After Marking Complete

Consultant: _____

Date: _____